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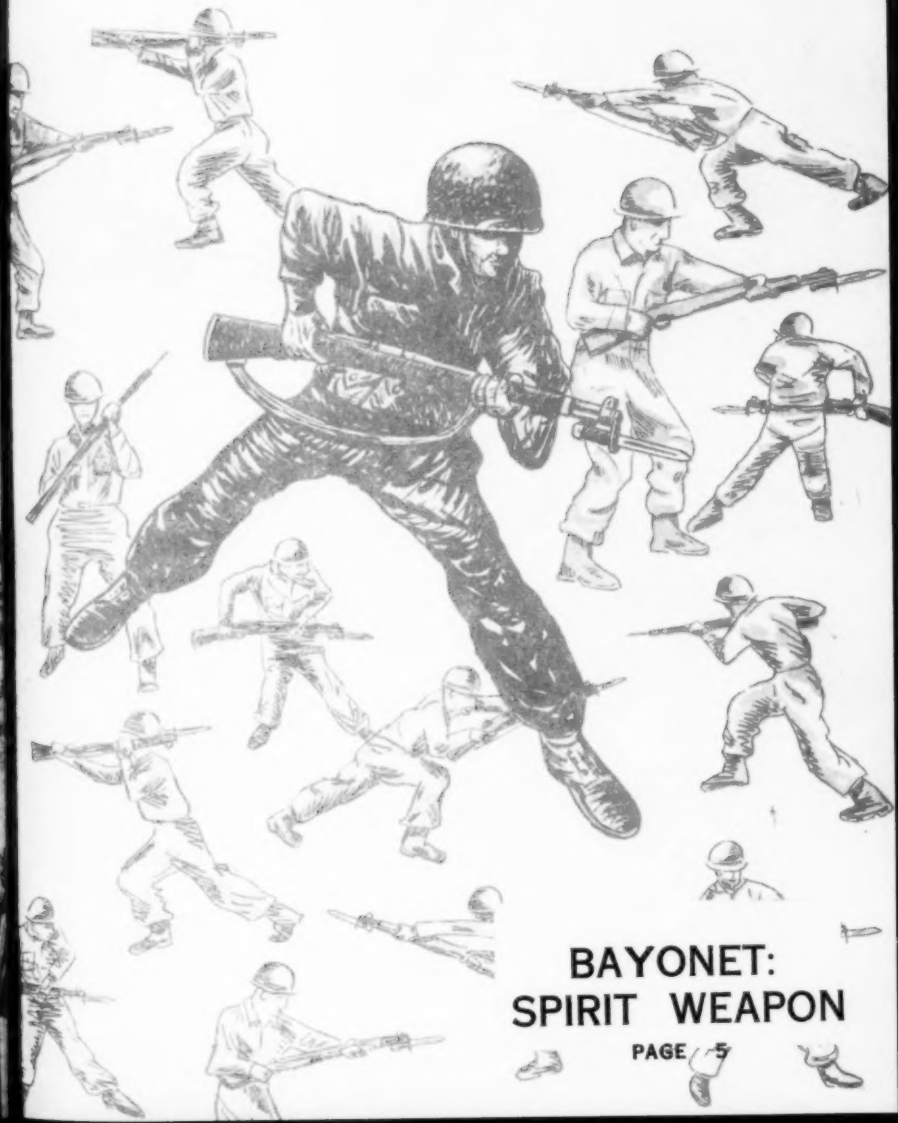

BAYONET:
SPIRIT WEAPON

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INFANTRY SCHOOL QUARTERLY

The latest thought on infantry
by the instructors of
The Infantry School

THE INFANTRY SCHOOL, FORT BENNING, GEORGIA

SIG 1

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The Bayonet—Spirit Weapon

By Major Schiller F. Shore, Infantry

EDITOR'S NOTE: This article represents the opinion of the writer, not necessarily that of The Infantry School.

We all know that the bayonet is seldom used to kill an enemy.* Combat experiences of World Wars I and II have pointed up this fact. It is difficult to find a man who has actually killed with cold steel. Bullets are better; no soldier in his right senses will engage in a bayonet duel while he still has a loaded rifle. Bullets are surer, easier.

For these reasons the bayonet and bayonet training have fallen into a period of what is known as "deemphasis." This is a long and nebulous word for "forget it; you won't need it."

It is easy to see the logic behind "deemphasis" of the bayonet. If we're not going to use it, let's cut out the hours spent on bayonet training and put them to use on training we do need.

This has been done. The hoarse-voiced bayonet instructors have disappeared. And bayonet training is now considered as merely the excellent physical conditioner that it is.

The writer maintains that this is excellent logic but poor psychology.

We have already discussed the logic of deemphasis, and few of us will find fault with it. But let us now look at the psychology of it.

*NOTE: A recent and notable exception is the case of Major John Cook, late of The Infantry School, in the Korean War. Surrounded by infiltrating Communists, Cook emptied his pistol into the charging Reds, picked up a rifle, shot several of the enemy, and then, his ammunition gone, used his bayonet for a final kill before he himself was killed. He was awarded the DSC.

Our infantrymen are taught to "close with and capture or destroy the enemy." This is the ultimate goal of all training. In the final phase of an assault our infantrymen come within—for want of a better word—spitting distance of the enemy. Or, if you prefer, close combat.

Well, what weapon in all our armament is symbolic of close combat?

I think it is the bayonet and what goes with it—the spirit of the bayonet, offensive-mindedness, and the will to kill.

All these things are tied in, in some intangible way, with the bayonet on the end of the rifle. I believe it belongs there, that it looks good there, that even though it seldom explores an enemy gut (bullets being better), the sight of cold steel brings fear to the defender and an extra bit of courage and confidence to the man who knows how to use it if he has to.

By "deemphasizing" the bayonet and the spirit of the bayonet as we used to teach it, this writer believes that we subtract in some measure from the spirit of the offensive and the will to close with the enemy. We strip ourselves of a "spirit" weapon that cannot be replaced by a pistol, a knife, a flamethrower, or any other lethal device. The bayonet is a tradition that we should not discard.

Let us "reemphasize" the bayonet. Bring back the old time bayonet sergeants (though modifying their enthusiastic opinion that the bayonet is the *only* weapon). Let us reinstate cold steel as the symbol of final assault, even though bullets rightly do most of the killing.

Infantry and VT Fires

By Lt Col Bruce Palmer, Jr., Infantry

EDITOR'S NOTE: This article is a rebuttal to "THE FUTURE OF CLOSE COMBAT," by Lieutenant Colonel George B. Pickett, Jr., Cavalry, published in the July issue of this magazine. In that article, readers may recall, Colonel Pickett foresaw a totally mechanized army in which infantry, relatively few in number, employ the killing power of machines to offset a numerical inferiority in personnel. In this article, Colonel Palmer takes exception to Colonel Pickett's conclusions. Both articles are speculative and do not necessarily reflect the thought or opinion of The Infantry School. However, the following article is considerably closer to the present thought and doctrine of The Infantry School.

In military circles today a great deal of discussion centers about the tremendous destructive power of modern weapons and their effect on future warfare. Particularly cited are such items as the atomic bomb, atomic artillery shells, biological warfare, chemical warfare, guided missiles, and the proximity (VT) fuze. Among ourselves we find defeatists, both military and civilian, who wring their hands over these developments. They proclaim that it is no longer possible for an unprotected man to survive the holocaust of the modern battlefield and that, consequently, future battles will be completely mechanized in nature.

This trend of thought is not new. Dire predictions of man's fate have followed every major innovation of warfare since the invention of the bow and arrow. Nevertheless, the revolutionary effect of new weapons has not always materialized to the extent anticipated. For example, the machine gun was to have meant the end of the infantryman in an offensive role; and the submarine was to spell the doom of all surface ships. Yet the infantry has borne the brunt of the fighting in two world wars since the advent of the machine gun; and, despite the submarine, surface ships have carried out a vital role in those two wars. The reasons for this are obvious: man has been just as ingenious

in devising ways to combat new weapons as he has in developing those weapons. At times an offensive weapon will have the edge over its defensive counterpart, and vice versa. A familiar example of this is the century-old race between the gun and armor plate.*

There are numerous complex factors which make it a difficult proposition to predict accurately the turn that future warfare may take. As a rule, contemporary prognosticators are too close to the subject to realize its true import. Weapons now on hand may become obsolescent without our realizing the fact. Moreover, the development of arms, like history, sometimes repeats itself. For instance, the use of armor by cavalry has gone through several cycles in the past. We can trace one cycle to illustrate the point: In the Middle Ages, European cavalry was heavily armored. With the introduction of gunpowder, the armor of cavalry was gradually lightened until, in the 17th Century in Europe, armor disappeared and cavalry placed its main reliance on superior mobility and speed in the attack. The cycle was completed during the Napoleonic era, where we find armor reappearing in the cavalry. . . . Modern armored forces may be following such a cycle today without being aware of it. Some day the tank may immobilize itself with progressively heavier armor; and, like the cavalry of old, the tank faced with more powerful antitank weapons, may be forced to lighten its armor and rely on mancuverability, fire power, and speed to carry out its mission.

One truth has been steadfastly apparent in warfare since the first recorded days of history: Man himself has always been the decisive factor in combat. With the exception of relatively short intervals when cavalry was the dominant arm, the infantry has been the arm of decision on the ground. *Despite the devastating power of modern weapons, there are today no valid reasons to doubt the continued decisive character of the infantryman's role in battle. On the contrary, all indications are that the infantry will decide the issue in the next war as it did in the last.*

---

*(EDITOR'S NOTE: For an excellent discussion of this problem see GUNS AGAINST ARMOR in the July issue.)

And now let us consider one of the recent developments of war—the VT fuze—and analyze its probable effect on infantry combat. In his book, MORDEN ARMS AND FREE MEN, Dr. Vannevar Bush states that the VT fuze has greatly increased the effectiveness of artillery fire against personnel in the open—"perhaps as much as ten times." This is an extravagant claim which has not been substantiated. It is true that an air burst detonated at the ideal height off the ground over unprotected troops will usually inflict more casualties than a ground burst using quick or delayed fuzes. But how many more casualties would result depends on numerous variable factors. There is nothing to indicate, under any circumstances, that air burst fires would cause a tenfold casualty increase. In the past it has been generally conceded that air burst fire under ideal conditions is two or three times as effective as impact fire—certainly far less than ten times as effective. Our combat experience with the VT fuze was gained late in World War II and is consequently limited. The VT fuze proved to be highly successful in those instances where conditions made its use feasible and profitable. Again, however, the ratio of its increased effectiveness (under ideal conditions) over impact fire was estimated to be more nearly in the neighborhood of two or three rather than ten to one.

Let us now consider the capabilities and inherent limitations of this VT fuze. First, we should bear in mind that air burst fires are not new to the artillery. Time fuzes have been used for many years to obtain air bursts, the increased effectiveness of such fires under certain conditions having long been recognized. We might say, then, that the VT fuze has not revolutionized artillery fires, but rather has greatly increased the flexibility and ability of artillery to obtain air burst fires. The capabilities and limitations of air burst fires with the VT fuze may be listed in general like this:

Capabilities: Most effective type of fire against targets in the open, in shallow entrenchments, or in deep entrenchments without overhead cover.

Usable to maximum range of weapons.

Usable in both low-angle and high-angle fire. With high-angle fire, air bursts can be obtained along irregular reverse slopes or near the bottom of deep ravines.

Following registration, air bursts may be placed over target areas at night, in smoke or fog, or under any conditions of poor visibility.

Limitations: Ineffective against troops dug-in with suitable overhead cover.

Cannot safely be brought closer than approximately 300 yards to friendly troops. (This is horizontal clearance.)

Requires certain clearance over friendly troops and any intervening masks. This factor complicates the computation of firing data, thus increasing the time required to adjust fire on a target and thereby reduces the over-all efficiency of the artillery.

Requires close coordination with friendly aircraft; this further complicates fire direction and reduces the flexibility of artillery fires.

To be effective, air burst fire—like any type of artillery fire—must be observed. Aerial observation by light aircraft flying over friendly territory is made more difficult because the flight of the aircraft and the trajectory of the shells must be more closely coordinated than other types of fire. (This limitation is not present where high-performance aircraft flying over enemy territory are used to observe long range neutralization, harassing, interdiction, or counterbattery missions.)

A small percentage of premature bursts is obtained; this percentage increases when firing in rain.

The height of burst is increased when firing over water, in wet or marshy terrain, and in dense woods, thus reducing effectiveness of the fires. (This effect can be decreased by increasing the angle of fall.)

Certain mechanical limitations of the VT fuze prevent its use below a minimum usable range (2,700 yards for the 105-mm howitzer), although this limitation may be overcome in later models of the VT fuze.

The present VT fuze has no impact element to detonate

the charge in case of failure. (This may be corrected in later models.)

Bearing in mind these capabilities and limitations, let us analyze how VT air burst fires might be used. Employed offensively against troops on the defensive, their extensive use appears to be limited primarily because of the vertical and horizontal clearances required for safety of attacking troops, and the fact that the defender can provide himself with overhead cover. Profitable employment, both offensively and defensively, would include relatively long range neutralization, harassing, interdiction and counterbattery missions against personnel, material, and installations that cannot readily be protected by overhead cover. The most profitable employment would be on the defensive against attacking troops, particularly when the defender has overhead cover. Our primary problem therefore, confronts us when we are the attackers and the enemy uses massed air burst fires against our advancing infantry.

There are armored enthusiasts who because of the threat of VT fire foresee the end of infantrymen in an offensive role. They feel that our present infantry offensive doctrine is unsound in the face of enemy use of massed air burst artillery and mortar fires. Their solution runs about as follows:

> Back in their assembly areas, put our infantrymen in armored personnel carriers and transport them to their attack positions. This will eliminate long, weary foot marches in the mud. In the attack positions, the armored personnel carriers take up the formation they will use to cross the line of departure. Using their speed and mobility, the carriers then cross the line of departure and rapidly and safely transport the infantry to the assault position. Overwatching and accompanying tanks protect the advance of the carriers. At the assault position, the infantrymen dismount, indirect supporting fires are lifted, and the infantry and tanks assault the objective together, the carriers meanwhile adding their fire power to other direct fires supporting the assault. Once the objective has been taken, the carriers displace, bringing up a resupply of ammunition for the infantry and making the carrier fire power available for defense of the objective against counterattack.

A pretty picture, this, but it has a few holes in it. First, the use of armored personnel carriers to transport troops simply for the purpose of eliminating foot marches is highly impractical. One 2½-ton truck can carry the load of two or more personnel carriers at a fraction of the latter's initial cost, maintenance cost, and fuel consumption, not to mention increased road space and the wear and tear on those roads. The additional drain on the country's resources and the increased shipping space needed to get carriers to a theater of operations are other disadvantages of no small proportions.

Second, the speed and mobility of full-tracked vehicles, including carriers, exist primarily on roads. The cross-country mobility of the carrier, compared to that of the foot soldiers, is very poor indeed. In fact, in comparison to the infantryman, the carrier is relatively roadbound. The most formidable obstacles, artificial or natural, will not stop determined infantry—but they'll halt carriers. Carriers can make real speed only on roads; cross-country, even over favorable terrain, they are relatively slow.

Third, the proposed carrier employment advocated by the armored enthusiasts sacrifices the mutual benefits derived from the infantry-tank team. Visibility from both tanks and carriers is extremely restricted, particularly in battle. Yet in this proposal there are no infantrymen to guide either tanks or carriers around or through obstacles; no infantrymen to locate enemy antitank guns and have them neutralized with supporting high explosive fires and smoke; no infantrymen to point out targets to the tanks; and, most serious of all, no infantrymen to protect the tanks and carriers from individual enemy tank hunters. The fighting soldiers are present all right—helpless, deadweight passengers in a lightly armored carrier which is highly vulnerable to any enemy direct fire weapon larger than .30 caliber.

The other advantages claimed for the proposed carrier employment are hardly more convincing. With regard to the fire power of the carriers, the infantry would prefer the heavier and better armor-protected fire power of an equal number of tanks. As for ammunition resupply by the

armored carriers, the infantry has its own vehicles and, moreover, when operating with tanks, can use the tanks for the same purpose.

How then are we of the infantry going to attack an enemy possessing the VT fuze? An enemy extremely strong in artillery and armor? Devices which will cause malfunctioning of hostile VT fuzes can be developed, but we should not rely on such counter measures. Rather we should assume that the enemy at times will be able to utilize the VT fuze efficiently despite its inherent limitations. Even under such circumstances, our present tactical doctrine, both offensive and defensive, is sound and entirely workable. However, there are certain points we should stress in both our training and application of that doctrine which will minimize the effectiveness of hostile VT fires.

First, we can stress certain passive measures in our training. Troops when confronted with air burst fires must learn to avoid the impact areas and by-pass them when possible. When these fires cannot be by-passed, or when caught in the impact area of such fires, troops must be trained to move forward rapidly in a dispersed formation. They must realize and believe in as never before the truth of the saying, "Safety lies forward." They must practice this action under realistic conditions of simulated air burst fires so that their natural and habitual reaction when confronted with actual air bursts will be *to keep moving rapidly forward.*

Once having taken their objective, troops must know how to hold that objective even under enemy VT fires. They must be trained to provide themselves quickly with the best available overhead cover. They must be alert to occupy enemy positions with overhead cover, provided they can defend their newly-won objective from such positions. They must learn to take advantage of the cover offered by friendly tanks. They must be trained to dig their foxholes first down and then horizontally to give themselves some degree of overhead cover. Assault echelon commanders must be quick to size up the situation and where necessary take up a reverse slope defense in order to make the hostile VT fires

more difficult to deliver and to observe. Troops in a sustained defense must be trained to build adequate overhead cover as soon as possible, not only to protect themselves but to allow the use of friendly VT fires defensively against the enemy.

Let us next discuss what we can and must do in planning and conducting our attacks to reduce the effectiveness of hostile VT fires.

Initially we must do all we can to locate areas on which the enemy has registered prearranged VT fires, so that our assault echelons in planning their attack can avoid such areas. A detailed terrain analysis, keeping in mind the characteristics of the VT fuze, will be of considerable help in locating likely impact areas. A reconnaissance in force of the enemy position may deceive him into showing his hand and disclosing at least some of his prearranged impact areas.

Our counterbattery and countermortar efforts must be stepped up. We must fight fire with fire. Where conditions favor it, we must use VT fires against hostile batteries. After all, it is a difficult matter to provide the crews of larger caliber guns with overhead cover.

We must make every effort to locate and neutralize the enemy's ground observation posts. If this cannot be done with high explosive fire, the enemy must be blinded by smoke. We must eliminate aerial observation with our own airpower and antiaircraft weapons. In cases where we have been unsuccessful in neutralizing the enemy's observation and where the terrain offers little cover and concealment, we should attack at night. In fact, the night attack may frequently be the answer in taking a position heavily defended by air burst fires. The enemy may use prearranged VT fires at night, but to be effective such fires still must be observed and adjusted.

Once having launched our attack, we must step up the rapidity of advance. Assault echelons must cross the line of departure rapidly and keep driving steadily to the assault position with the idea of making one single, uninterrupted movement. There must be no delay at the assault position,

for delay at this critical juncture may be fatal. Assault rifle units must practice and perfect the close coordination of the launching of their assault with the lifting of indirect supporting fires. This entails constant and thorough combined arms training at all levels, with the emphasis on teamwork.

We can conclude, therefore, that the VT fuze is not an all-powerful weapon that will drive the infantryman from the battlefield. Rather it is an additional threat which infantrymen must face, but which they can overcome with confidence. True, the VT fuze has powerful capabilities, but also it has severe limitations that restrict its use. Infantrymen should have a healthy respect for it, but not an abject fear of it. Above all, they must know its capabilities and be thoroughly trained in how best to combat it. The infantryman should fear the VT fuze less than riding to battle in a highly vulnerable armored personned carrier.

COMING IN THE JANUARY 1951 QUARTERLY— ***Death of the Glider,*** **by Major Edward M. Flanagan. The author says the glider is a vibrating bag of plywood unfit for delivering men and supplies to the battlefield. Let's junk it, he says, and concentrate on the heavy drop technique of aerial delivery.**

"This Platoon Attacks . . . "

By Capt Charles K. Blum, Infantry

EDITOR'S NOTE: The situation covered in this article is an excellent basis for a field training problem. Minor changes in the situation will adapt it to fit terrain available in most training areas.

The stout-looking colonel from theater headquarters adjusted heavy tortoise-shell spectacles on his nose and squinted at the little group of men sitting around him—Capt. Kenny, CO of Company E, 7th Infantry; Lt. Adams, platoon leader 1st Platoon, Company E; the NCO's of the 1st Platoon; and the squad leader, 1st 57-mm Rifle Squad.

He offered cigarettes around the circle and waited as everyone lighted up and settled back. Then he began:

"You know," he said, "I'm from the Historical Division. We're interested in small-unit actions—platoon and squad combat experiences. Well, I'm here now to learn as much as possible about your attack on Hill 480 with the 1st Platoon.

"Capt. Kenney has already told me the background information. I'd like to begin with that and then let Lt. Adams take up the story from the time your platoon was in the attack position. From time to time I'll interrupt and ask questions. We want everyone's point of view. That's the only way to get the complete picture."

He puffed a moment on his cigarette.

"Any questions?" he asked then.

There were none.

"All right. I've made some sketches of the area around Hill 480." From a pile of papers at his elbow he drew copies of the sketches and gave each man one. (See Operation Sketch, Figure 1.) He smiled wryly as the last one was accepted. "No use to orient you on the terrain, I know. You've been over it—the hard way. But for my own benefit I've written some notes explaining the ground. Will you read those now and see whether they are correct?"

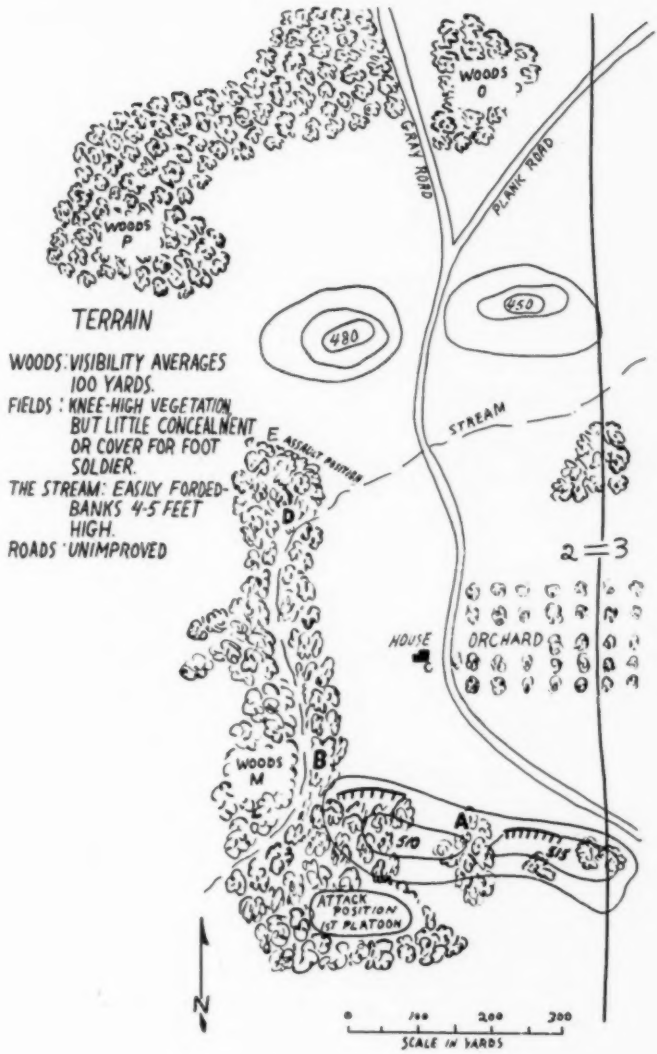

Figure 1. Operation Sketch.

Heads bent attentively over the sketches, while the colonel himself looked at another paper and seemed to refresh his memory on certain points. When he looked up, everyone's eyes were back on him again.

"Any changes or additions?" he questioned. There was a silent shaking of heads.

He paused to take another look at his notes. "Well, let's see. . . Just before this action your regiment, part of a larger force, had been advancing north against stiffening Aggressor resistance. By 1200 hours on 3 October you people in the 2d Battalion had captured a line running east and west through Hills 510 and 515. Capt. Kenney tells me that by 1300 Company E was ready to continue the attack at 1330."

The colonel referred to his notes.

"Now for your platoon, 1st Platoon of Company E. In the morning's attack you had been the support platoon, but for this new attack at 1330 you were picked to capture Hill 480. By 1300 Lt. Adams had issued his attack order and about 1320 you moved into the attack position, which I've shown on the sketch.

"I'd like to go back to that order right now. Lt. Adams repeated it for me just before we all got together here today. I'd like to read some extracts from that order as he gave it. Ready—?

" 'Our company attacks north to capture Hills 480 and 450 with 1st and 2d Platoons abreast, our platoon (1st Platoon) on the left. 3d Platoon now holds positions on Hill 510. Artillery and 81-mm mortars support the attack by firing HE and smoke on Hills 480 and 450 from H-5 minutes until lifted on call. 60-mm mortars fire on targets of opportunity and on our call.

" 'This platoon, with 1st 57-mm Rifle Squad attached, attacks in the left portion of the company zone on a frontage of 250 yards to capture Hill 480. Our zone includes Woods M. We'll continue the attack to the north on order.

" 'Formation: platoon column, in the order 1st Squad, Weapons Squad, 2d Squad, 3d Squad. Line of departure: present front lines of 3d Platoon. Direction of attack: 360°.

We'll move along through Woods M, here in the left half of our zone. That way we can keep between the edge of the woods and the stream, which is easily forded and has high banks that we can use for cover if necessary. The tentative assault position is here, the northern edge of Woods M. Time of attack: 1330.

" '1st Squad: lead squad— and *base* squad. Skirt the western edge of Hill 510 and move up through the woods, keeping the stream on your left. Cross the stream where I've marked the letter *D* on the sketch. After that, keep the eastern edge of the woods to your right until you reach the assault position. 1st Squad is also base squad for the assault.

" 'Weapons Squad: follow the 1st Squad. At the assault position, LMG go into position in the woods on the extreme left of the platoon—where I've marked the letter *E*. Support our assault on Hill 480. Displace when your fires are masked. . . .

" '1st 57-mm Rifle Squad: from positions near point *A* on Hill 510 be prepared to fire on targets of opportunity in the platoon zone of action. Displace to Hill 480 when your fires are masked. I plan to use you in the 2d Squad's area in the reorganization.

" 'The tentative assault position is marked on your sketches. Deploy there on my signal in platoon line formation; right to left. 1st Squad, 2d Squad, 3d Squad. Assault on my signal. Reorganize on the objective as follows. . . .' "

The tortoise-shell spectacles lifted. "Is that about how everyone remembers the order?"

"Yes, sir," they all answered.

The historian looked at Lt. Adams. "Is a platoon attack order usually this detailed?"

"The original order, yes, sir."

The colonel now turned his eye on Capt. Kenney. "Any frumperies—excess details—in it?"

"No, sir," answered Company E's CO. "A good platoon attack order covers the exact things you've read—detailed instruction to every squad." He added, "The 1st Platoon is a good platoon."

"Yes, I know," replied the visitor. "Well, let's see. . . By 1320 that day the platoon was closed into its attack position. At 1325 the preparatory fires of artillery and mortars began."

The colonel looked directly at Lt. Adams and asked: "Did you wait until 1330 to signal your men to move out?"

"No, sir. I signaled the 1st Squad forward about 1327."

"Why?"

"Well, the lead element of my platoon had to cross the line of departure at 1330, H-hour. The movement from the attack position is timed so the leading element of an assault platoon crosses the line of departure at the time specified for the attack to begin. It took about three minutes to move through the woods up to the line of departure. Here, sir—a schematic drawing or diagram of an attack looks like this." The lieutenant drew rapidly on the back of his map sketch and pushed the result toward the colonel: (See Figure 2.) The colonel looked closely at the diagram.

OBJECTIVE
Enemy position to be Captured
ASSAULT POSITION
Shift indirect supporting fires when here
LINE OF DEPARTURE
Cross at H-Hour
ATTACK POSITION
Last position occupied by troops before crossing line of departure & could have cover and concealment

Figure 2. Schematic drawing of an attack.

"And you crossed the line of departure on time?" he asked.

"At exactly 1330." said Lt. Adams.

"Where was your position in the column?"

"Near the head of the formation—just in rear of the lead squad. The platoon leader's position is not fixed. Usually, however, he is near the head of the formation."

"And the platoon sergeant?"

A new voice answered: "I was just behind the Weapons Squad, sir. The Weapons Squad was next in line after the 1st Squad."

"Is your position fixed, sergeant?"

"No, sir. But I should stay pretty close to Lt. Adams, the platoon leader."

"Where was the assistant platoon sergeant?" asked the colonel.

Another NCO answered: "I was near the rear of the formation, sir. Usually, when the platoon leader and the platoon sergeant are forward in the formation, the assistant platoon sergeant follows in rear of the last squad."

"I suppose each squad leader was well forward in his squad formation also?" questioned the theater historian.

A chorus answered: "Yes, sir."

Capt. Kenney leaned forward and explained: "You see, sir, the leader of a squad or platoon should be well forward in any deployed formation. From a position to the front of his formation, the leader will be able to see the terrain over which he is moving; he'll be able to regulate the direction, rate of advance, and employment of his security; he'll be able to make quicker and sounder judgments if his security element comes under fire. He also is in a position where the majority of his men can see him and thus be able to follow quickly his arm-and-hand signals. For these reasons, the rifle squad leader usually is just behind his leading two or three men, his security element; the platoon leader, behind his lead squad, which is the security element for the rest of the platoon."

The colonel scribbled on a blank sheet of paper at his elbow. He pushed the paper towards Lt. Adams.

"Your formation, then looked like this?" (See Figure 3.)

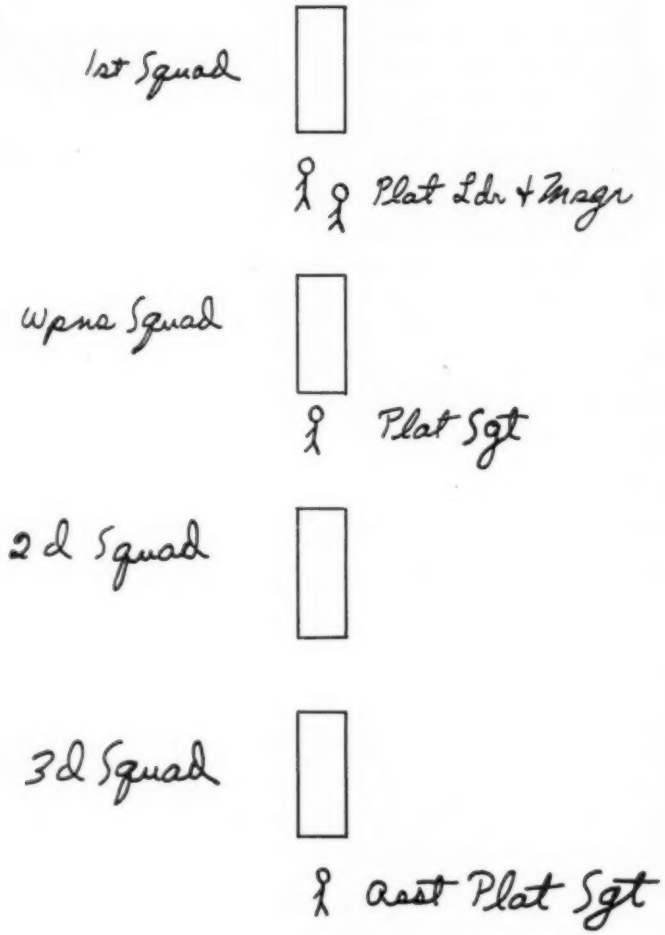

Figure 3. Platoon formation.

Lt. Adams studied the sheet and nodded.

"Why is your Weapons Squad so far forward in the formation? Aren't they supporting weapons for the rifle squads?"

"Yes, sir, they are. For just that reason they should be able to go into firing positions fast as soon as the lead squad contacts enemy. By having the LMG and rocket launchers just behind this leading rifle squad, I'll be able to get them into the fire fight early and build up a heavy volume of fire."

"What means had you designated for maintaining direction?"

"A number of things, sir. I designated a base squad, I gave the direction of attack, I showed my squad leaders the platoon zone of action on a map and on the ground, and I specified a route to be followed. These things I included in my order. Even before issuing the order, I oriented my squad leaders thoroughly on the terrain over which we were to attack."

"How did you control the rate of advance?"

"My lead squad was also base squad for all movements of the other squads. I controlled the rate of advance of my base squad by oral orders and by arm-and-hand signals. The other squads then adjusted their rate of advance on the base squad."

"After you crossed the line of departure, what happened?"

"The platoon passed the western base of Hill 510 and moved northward through the woods. The squad leader, 1st Squad, moved rapidly, keeping the eastern edge of the woods to his right and the stream to his left. I followed close behind the 1st Squad.

"When I reached the point marked *B* on the sketch, several enemy artillery rounds landed in the woods to my rear, near the middle and tail of the column. Fragments from tree bursts were flying in every direction. I heard a man cry out as he was hit and then I heard other men shouting: 'Medic! Medic!' Then I couldn't hear anymore as several new rounds smashed down into the trees behind me."

"What did you do at that time?"

"I doubled-timed my men forward rapidly to get them out of the impact area. When the next rounds fell, they were too far behind us to do any harm."

"And the wounded man or men?"

"The platoon medic took care of them. The best way the rest of us could help was to push on and take our objective, so that the area where these men were hit—there were two of them—could be in friendly hands and ambulances or litters could be brought up to them."

"What did you do then?"

"I sent my messenger back along the column to get a report from the last two squads. The messenger still hadn't returned with a report when machine gun fire from the open field to our right hit the woods. The first bursts were up in front of me—high—over the heads of the 1st Squad. The sound of the gun, coming right after the crack of the rounds passing near us, warned that the enemy gun was close, very close. I looked quickly out into the field but couldn't see the gun."

"What was your reaction then?"

"I signaled my men to take cover behind the bank of the stream to my left."

"To save unnecessary casualties?"

"Yes—and also to regain control and to give us a chance to search for the gun that was firing at us. Once we were behind the stream bank, I raised my head and looked around. A new burst of fire tore into the ground about ten yards to my flank and then ricocheted up into the trees. About the same time a rifleman nearby shouted: 'There he is—out in that knocked down house! That was at Point *C*, sir.

"I looked where the man was pointing. And there was the enemy weapon—a machine gun. I could see just where it was firing from a hole in the wall."

"Did you attack the house?"

"No, sir. We could by-pass it by moving up the stream bed. That way we could get on with our mission—the capture of Hill 480."

"What did you do about the enemy machine gun?"

"I knew my 57-mm squad back on Hill 510 could knock it out. The 57-mm rifle is an extremely accurate direct fire weapon. We fired two rounds of white-phosphorous rifle grenades at the house to show the target to the 57."

"Did the 57-mm recoilless rifle squad understand your signal?"

One of the NCO's answered: "Yes, sir. Lt. Adams arranged for that signal in his order. You see, the 57-mm squad doesn't have radio contact with the rifle platoon. We have to rely on oral orders, arm-and-hand signals, or pyrotechnics."

"And your 57-mm recoilless rifle knocked out the enemy weapon?"

"We silenced it. Yes, sir."

"Did you wait to see the result of the 57's firing?" the colonel asked Lt. Adams.

"No. We moved on up the stream bed. We had lost time, so I urged the lead squad on. The going was rough, but we made good time.

"The lead riflemen reached a point in the stream approximately where the letter *D* is marked on the sketch. They started to climb over the bank in order to stay inside the woods. I suddenly heard a shout up front, and then a rifle shot, and then several other rifle shots. The lead men had been fired on by two or three enemy riflemen in the woods just north of the spot marked *D*."

The colonel held up his hand. "Who was squad leader of that squad?"

"Here, sir," answered one of the sergeants.

"What did your lead men do?"

"They got in position and returned the enemy fire. So did the other riflemen. I was lucky enough to see the whole action—I even caught a glimpse of two Aggressors as they fired at us.

"I ordered the automatic rifle team to a good firing position just off to my left and up against the bank. The assistant squad leader took charge of the AR team."

"You deployed all of your men?"

"Yes, sir. And once they got firing, the Aggressor firing died away. I ordered the squad to move forward then."

"And you were able to advance?"

"Yes, sir. We didn't receive any more fire. I found out why when I almost stumbled over two Aggressor soldiers lying in the woods. Those two wouldn't do any more firing —ever."

"Did you see any more enemy soldiers?"

"Not until we were up on Hill 480."

"While the 1st Squad was having this fire-fight, Lt. Adams," the colonel continued, "what was the rest of the platoon doing?"

"The 1st Squad did such a good job—and did it in a hurry, too—that I didn't have to deploy my weapons squad at all or have to use the other rifle squads. As the 1st Squad pushed on through the woods, I hurried after them. We were almost to the northern edge of the woods and I could see friendly artillery and mortar fire hitting and shaking Hill 480. Heavy white smoke drifted over the face of the whole hill. Our supporting artillery and mortars sure were doing a fine job."

"You didn't see any enemy?"

"No, sir. Not through that smoke and HE."

"I see. So you reached the edge of the woods—you reached your assault position?"

"Yes, sir. I signaled to the leader of the 1st Squad to deploy his men just inside the northern edge of the woods."

"And the formation was—?"

"Platoon line, with each squad as skirmishers, AR right. Remember, my order called for the 1st Squad to be on the right, the 2d Squad in the center, and the 3d Squad on the left. That's how the squad leaders know where to deploy—I tell them in the order."

"How far was the assault position from the objective?"

"About 150 yards from the military crest of Hill 480. The assault position is usually about 100-150 yards from the objective. That's as close as we can come to our supporting mortar and artillery fires before they have to shift."

"Mortars and artillery lift when you are at the assault position?"

"Yes, sir. Indirect fire weapons lift—either beyond the objective or to the flank. Direct fire weapons—such as recoilless rifles and machine guns—lift when their fires are masked by our advance. We don't have to call for them to lift."

"Oh, you call for the fire of mortars and artillery to lift?"

"Yes, sir. As the 1st Squad began to fan out into a skirmishers formation, I called Capt. Kenney on the radio."

Capt. Kenney nodded.

"I told Capt. Kenney that my lead squad was beginning to deploy at the assault position. I told him that in about two minutes I'd have the entire platoon deployed and would want indirect fires lifted then."

"What did Capt. Kenney say to your message?"

Lt. Adams grinned across at his company commander.

"He said: 'Roger. I'll stand by. Good luck, fellow."

"I see. Did all of your platoon move forward in the assault?"

"The rifle squads and bazooka team did. The light machine gun team went into position near the letter *E* on the sketch. They were able to give us good flanking fire during most of the assault. I took the rocket launcher with me because, next to tanks, the bazooka likes to fire at point targets like enemy automatic weapons, emplacements, and the like.

"We didn't lose any time deploying. I called Capt. Kenney again and as the last rounds hit the hill from the artillery and mortars my last man was in position. I waved the platoon into the assault."

"Where was your position?"

"In the assault? Behind the line, where I could best see my men and supervise their advance and their fire. The platoon sergeant took the left side, I took the right."

"Where were the squad leaders?"

"Behind their squads, as were the assistant squad leaders. These leaders themselves seldom fire. The men did a fine job. Our training paid off. They advanced steadily and rapidly. They were firing a shot every second or fourth step, either from the shoulder or the hip. They kept their

fire to the front and fired at known and suspected enemy positions. The volume of their fire was steady and heavy—just right.

"We went up that hill and over the first enemy positions. We didn't stop there, but pushed on—to the far edge of the hill. I called Capt. Kenney again and told him we were on the objective. It was not a long message—I was anxious to see whether the squads had reorganized according to our plan."

"Your plan?"

"Yes, sir. The plan for reorganization is included in the attack order. A simple method for assigning each squad a sector of responsibility is the clock system. Look." Again Lt. Adams drew rapidly on his sketch map. "The order for reorganization was like this on the ground. (See Figure 4.)

"The 1st Squad was on the right, the 2d Squad in the center, and the 3d Squad on the left. The light machine gun was placed to cover the most dangerous avenue of approach for enemy foot troops—and then as much also of the platoon front as was possible. Woods P gave the enemy a concealed and covered route to within 100 yards of Hill 480. So the light machine gun covered it.

"The bazooka's primary mission is close-in antitank protection. Plank Road and Gray Road gave enemy armor their best avenue of approach. I placed the bazooka on the right to cover those two roads. I put the 57-mm rifle where it had observation and long fields of fire both to the northeast and the northwest.

"Of course, the positions I've marked here on the sketch are the primary position areas. Alternate and supplementary positions were also selected."

The colonel readjusted his spectacles. He asked: "And your men occupied these positions?"

"Oh, yes. I checked on the positions myself. But no counterattack came."

"Did you take any prisoners?"

"Three."

"How did you treat them?"

"Oh, as usual, sir. I made sure they had been searched. We took some papers to prevent their destruction; however, these papers could not be separated permanently from the prisoner from whom they were taken. There was one officer, so I kept him away from the other two."

"Did you give them cigarettes? Food?"

"No, sir. We shouldn't. I put a guard on them and sent them back to the company CP right away."

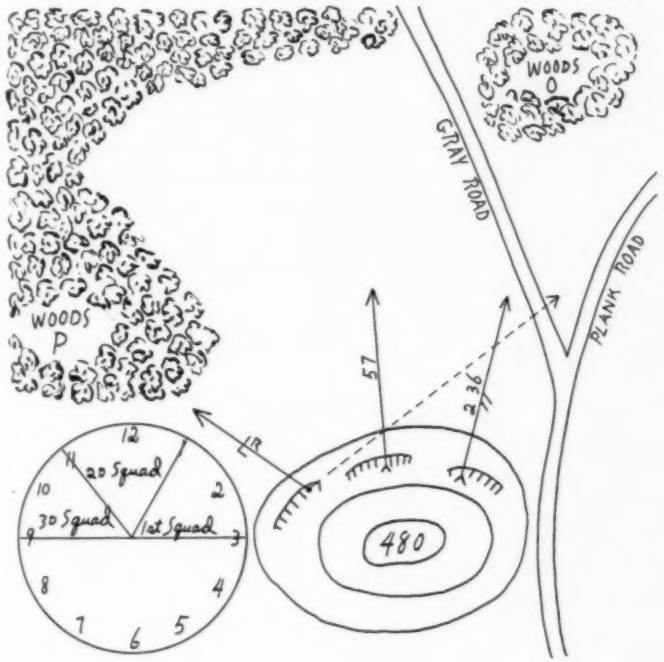

Figure 4. Clock system assignment of defense responsibility.

"You handled them according to the rules, eh?"

"Yes, sir. Proper handling of prisoners was one time explained to me as the five *S*'s:

Search them for weapons and documents.

Segregate the officers from enlisted men.

Silence them.

Speed them to the rear.

Safeguard them while they are in your hands."

"Did you receive any reports from your squads?"

"From all of them," nodded Lt. Adams. "With my own check, I then knew the status of ammunition, weapons, and personnel in the platoon. Just about everybody needed ammo. I called Capt. Kenney and he sent a jeep up behind Hill 480 with some ammunition. We were glad it didn't have to be hand-carried."

A silence fell upon the group. No one seemed to have anything more to say. The colonel shuffled his papers and finally said:

"You were supposed to be ready, after capture of Hill 480, to continue the attack to the north upon order of the company commander. What did you do about that?"

"My first job was to rebuild the combat power of the platoon—through resupply of ammunition and necessary exchange of men and weapons. But I was also looking over the terrain and planning ahead for a continuation of the attack. The attack of *any* new objective is just like our attack on Hill 480."

"And you even issued a new order?"

"Yes, sir—a fragmentary one, though."

The colonel scratched his thinning hair. He turned to Capt. Kenney.

"This platoon did a fine job, didn't it?"

"Yes, sir." The CO of Company E suddenly grinned. "So good the action could be used for instruction back at The Infantry school. . . . ."

Capabilities of the New Airborne Division

By Maj Lyman S. Faulkner, Infantry

EDITOR'S NOTE: The major portion of this article is factual and doctrinal; that part of it, however, which speculates on the future tactical employment of the Airborne Division should be considered the opinion of the writer, not of The Infantry School.

What objectives can the new airborne division seize and hold? How are the capabilities of the airborne division organization affected by recent additions? What tactical results can we expect from the latest technical advances? A glance at the increase in combat power may guide us to some answers. Further, analysis of a significant German airborne mission of the past war and an estimate of the results that the new airborne division could obtain against similar hostile dispositions, will furnish us with a firm basis for visualizing a logical employment of the new airborne divisional units in operations of the future.

Readers of the January and April issues of the QUARTERLY* know that new additions to the airborne division have increased the strength of infantry units, added two tank battalions, one 155-mm battalion, and strengthened the reconnaissance units.

These additions, though all are not available for the initial assault, now give the new airborne division the capacity for sustained action comparable to that of the infantry division. Once this new unit has completely assembled for battle, it approaches the combat power of the infantry division in men, tanks and guns.

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*NEW ORGANIZATION OF THE AIRBORNE INFANTRY REGIMENT, and THE NEW AIRBORNE DIVISION, in the January and April 1950 issues, respectively.

Here are comparisons in men and major weapons:

	New Airborne Division	*Infantry Division*
Men	17,601	18,899
Medium tanks	136	135
105-mm howitzers	36	54
155-mm howitzers	12	18
4.2-inch mortars	24	36
3.5-inch rocket launchers	494	465
75-mm rifles	46	39
90-mm AT gun	24	0

These physical additions tell only a part of the story. Technical developments are giving the airborne commander the ground flexibility of his marching counterpart. These developments fall into two groups: new aircraft and new airborne techniques.

Many unconventional aircraft are now on the drawing boards. Sometime in the future they may eliminate the parachute and the glider as the primary means of landing the division. At present, however, the latest standard troop-carrying plane—the C-119—makes the parachute more efficient than ever before. This plane (see Figures 1, 2, and 3) is a larger, more efficient version of the first post-war troop carrier, the C-82. It can deliver a full infantry platoon, complete with equipment and supplies for three days' operations, at a radius of over 700 miles. The C-119 is expected to be the work horse of airborne assault operations.

Other larger planes can fly greater loads for a greater distance when suitable landing fields are available. The C-124 (see Figure 4) can carry the light tank or about 25 tons of cargo or personnel. The XC-99 (see Figure 5) can carry about 50 tons of cargo; improvements should enable it to deliver a medium tank. Glider development is also continuing, but production of these one-shot aircraft eats into powered aircraft production, and even powered gliders (assault aircraft) may require some use of a tug plane. The large parachute is probably a more economical means of delivering vehicles and weapons.

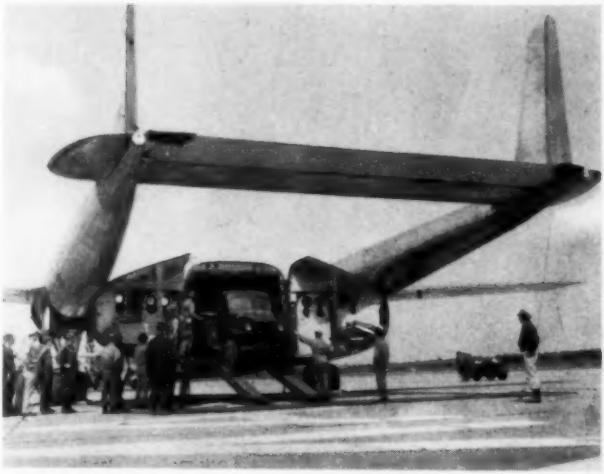


Figure 1. Loading 2½-ton truck into a C-119

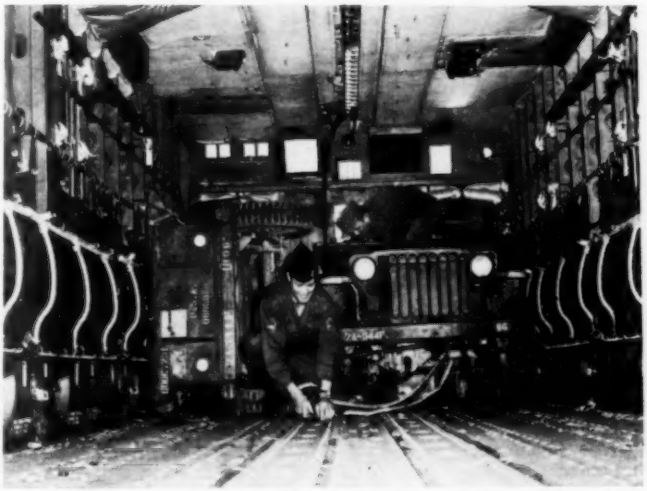


Figure 2. Interior view, C-119.

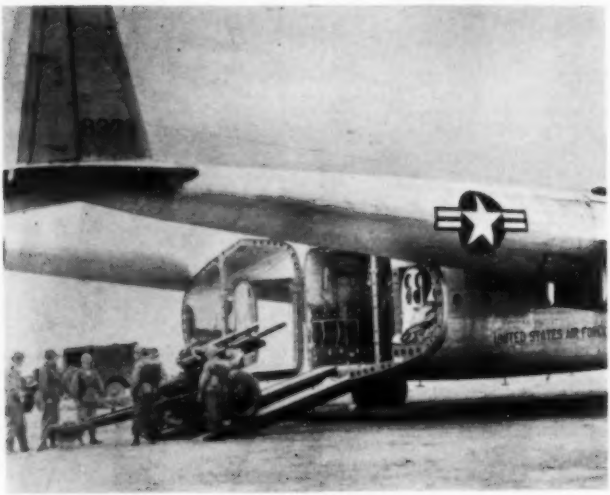


Figure 3. Loading 105-mm howitzer into a C-119.

Figure 4. Loading a light tank into a C-124.

An airborne technique that has received study is the application of the roller conveyer to the problem of clearing the aircraft of a full load of packaged supplies in one pass over the drop zone. The weight of the conveyer system reduces the payload by about one-eighth; nevertheless, accurate delivery of the palletized supplies can result in an overall economy by reducing the number of supply installations required in the airhead. Since supplies can be dropped directly to the using battalions, the number of vehicles, men, and gasoline required to move the supplies from the airhead to the fighting men can be reduced. The problem of collecting the supplies after the drop is simplified by the tight landing pattern resulting from the rapid ejection of the cargo.

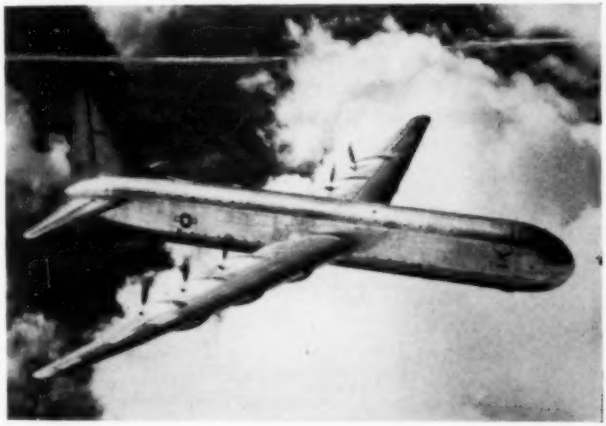


Figure 5. The XC-99 Airplane.

The collection of supplies is further simplified because of the large number of vehicles that can be dropped with the assault echelon by the large cargo parachute. This heavy drop system is the most spectacular of recent advances in airborne techniques. To give you an idea of this let us move out to the drop zone behind the official car of President Truman to view a combat maneuver presented

by the members of the 82d Airborne Division and Army Field Forces Board Number 1 in October 1949. Here is a commentator's report.

"The pathfinders have already landed, laid out their panels, and are setting up their navigational aids on the drop zone. Off to the flank a formation of C-82's is approaching. These planes have the so-called boxcar type of fuselage riding below twin tail booms. The rear clam shell doors of the boxcar have been removed. The planes are almost to the drop zone now. Note the small ribbon type chute breaking clear of the tail booms. (See Figure 6.) This chute is pulling a 105-mm howitzer from the open tail; the howitzer on a pallet is pulling out its large parachutes, which in turn will pull out the jeep and its parachute. The large chutes have all opened beautifully and are swinging their heavy loads easily to the ground. The planes nearing the drop zone are carrying the gun crews; the men are jumping now. Note how quickly the parachutists assemble on the guns and jeeps. . . . The guns fired in less than fifteen minutes after the first chute opened."

Figure 6. 105-mm howitzers dropping from C-82s.

The heavy drop should soon be a standard method in all airborne units for the delivery of vehicles, heavy items

of equipment, and palletized supplies. The required kits are now being prepared for issue and have been used in Exercise Swarmer.

Another technical advance is the development of the general purpose bag. This article of issue enables the parachutist to leave the plane heavily loaded with combat equipment, yet to land unencumbered and unweighted by his combat necessities. The means is simple. The airborne soldier, after his 'chute opens, trips a quick release device, which allows him to lower the bag on a 20-foot length of webbing. Since the bag hits the ground first, relieving the parachutist of its weight, he can land with a high degree of safety and be ready to fight in a matter of seconds without having to waste precious time searching the drop zone for his equipment. Typical loads for this standard container are: individual clothing and equipment, 60-mm mortar, mortar ammunition, 2.36-inch rocket launchers and ammunition, and the SCR-300 and extra battery. In a recent maneuver drop, a battalion of the 11th Airborne Division using these containers was able to assemble in the record time of thirteen minutes after landing.

By applying these new techniques to his more potent airborne unit, the commander may now land his force faster and assemble it more rapidly than ever before. He may also make more effective use of the landing troops. He can land the jeeps and their loads on the parachute drop zones or in other areas not suitable for glider landings. Thus, mounted reconnaissance elements can make full use of the early moments, so vital in airborne operations, to investigate pre-drop reports. Patrols and security forces, bolstered by jeep-mounted recoilless weapons, can rapidly engage the enemy and allow the commander time to organize and maneuver. The artillery commander now has a wider choice of initial artillery positions since he no longer has to rely on gliders to deliver his 105's. Thus, the airborne commander is now, more than ever before, equipped to drop and assemble a powerful, hard-hitting force at a critical point within the enemy area before the enemy commander can gather a counterattacking force to strike a vital blow at the airhead.

Let us now examine the first major airborne operation of the past war—the invasion of the British-held island of Crete in 1941 by German airborne forces. The story of this operation has a particular significance for those charged with planning future operations. It is the only major airborne operation in which the link-up forces played a minor role in the planning phase and had no effect on the success of the operation.

Operation "Merkur," as the Germans called it, was a turning point for German and Allied airborne forces. Its smashing success convinced Allied planners of the great potentiality of mass airborne operations. On the other hand, its costly losses—about 50 per cent of the troops who landed on Crete—convinced Hitler that airborne invasion was too costly a method compared to his relatively bloodless lightning thrusts through France, Norway, Yugoslavia, and Greece.

Actually, the losses were not excessive considering the gain. The Germans lost 3,774 ground soldiers, and 312 airmen, in dead and missing in landing the bulk of the 7th Parachute Division and the 5th Mountain Division. These two light units with about 25,000 men and tactical air support were able to defeat some 45,000 British and Greek troops supported by artillery, 30 tanks and considerable supplies. The British were able to evacuate only 14,850 of the defenders of this strategic island.

Two plans were initially proposed for "Merkur." Plan One conceived a landing and build-up only on the western end of the island. Plan Two called for a simultaneous landing at seven key points throughout the island. The plan finally used—a combination of Plans One and Two—limited the landings to four key points with the main effort in the west.

On the morning of D-day 530 planes and 53 gliders were to land approximately two reinforced regiments and an engineer battalion near Maleme and Canea. These forces were to capture the Maleme airfield, destroy distant antiaircraft batteries and take Suda Bay. They were to land in selected locations within an area eight miles long. In the

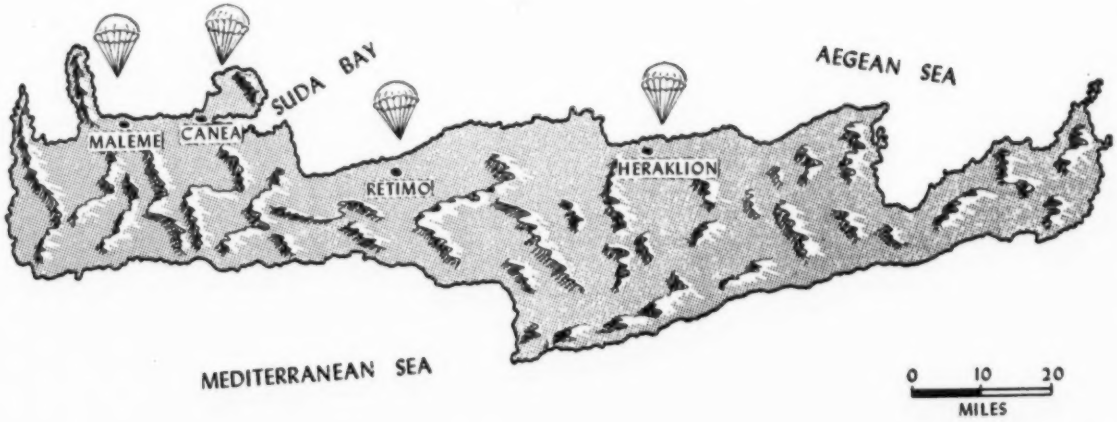


Figure 7. The German airborne attack on Crete.

afternoon of D-day, the same planes were to deliver two parachute regiments, one to capture Heraklion and its adjacent airfield, the other to seize the airfield at Retimo and advance towards Suda Bay. (Heraklion and Retimo respectively were 73 and 38 air miles east of Canea.) On D + 1 a mountain battalion and the land tail (administrative echelon) of both divisions were to arrive by sea. (See Map in Figure 7.)

The Germans seriously underestimated the British strength and some forces landed on or near positions manned by determined defenders. Consequently, many paratroopers were killed before they could assemble or recover the containers which held their combat equipment. Survivors from the hard hit groups did succeed in cutting the defender's communications and confusing his idea of the situation. A portion of the western force, landing unopposed, organized and launched an attack which won them temporary control of the Maleme airfield, although it was still under British fire.

The Eastern forces were dropped late on D-Day because of unexpected delay at the take-off airdromes. Both ran into heavy opposition and were successful only in organizing defensive perimeters. Casualties again were heavy and neither force was able to accomplish its mission.

On the morning of D + 1, single German transports began landing on the beach. At 1500 two companies parachuted on British positions east of Maleme; few of these troopers survived. At 1600 two and one-half companies dropped west of Maleme. These provided sufficient strength to clear the Maleme airfield once more. At 1700 transport planes carrying a reinforced battalion of the 5th Mountain Division landed, delivered their loads and took off again all under fire from the British guns. During this day the British navy destroyed the German waterborne force at sea.

On D + 2, despite intermittent British artillery fire which caused some crash landings, the Germans continued to air-land reinforcements without serious losses. These included two infantry battalions, an engineer battalion,

and an artillery unit. On the following day, additional forces landed. By D + 4 the Germans had cleared the western end of the island, begun serious attacks against Canea and Suda Bay, and started to reinforce the isolated troops at Heraklion by air drop. The outcome of the invasion of Crete was no longer in doubt.

By D + 7 the Germans had tied in all of their forces and were beginning pursuit and mop-up operations. The British began withdrawing their forces by sea at night from a southern port. The Battle of Crete had been decided by bold use of airborne forces in conjunction with close air support.

Were the British antiairborne defenses inadequate? The final results would make it seem so, and yet the British had been preparing for an airborne attack for weeks and they did succeed in exacting a heavy D-Day toll. General Freyberg, the British commander, had disposed his 45,000-odd men into four self-contained defense groups designed to protect the airfields of Maleme, Retimo, and Heraklion, and the supply base of Suda Bay. The Maleme area was guarded by a battered New Zealand division reinforced with 12 tanks and three Greek battalions; five battalions and the naval base troops guarded Suda Bay and the Canea area; seven battalions guarded Retimo, and seven battalions, reinforced by eight tanks, defended Heraklion. Three battalions were held in reserve and most of the antiaircraft guns were employed near Suda Bay. Many of the defenders had been evacuated from Greece without their artillery, transportation, and heavy equipment. In addition, the German air force had severely hampered delivery of supplies by sea to the island.

How could our new airborne division cope with such opposition and accomplish its mission with fewer losses? Hindsight will guide us in seeking the best possible solution. In the first place the Germans were interested in securing air bases on Crete for strategic purposes. Secondly, one secure air base would enable the Germans, with their preponderance of air strength, to deny the island to British reinforcements, and thereby insure the eventual

capitulation of the island. In planning our attack against Crete we would avoid the prepared defenses. We would land all of the combat elements, less tanks, of the new airborne division in one general area with the battalion drop zones within supporting distance of each other. Such a general area would be west of Maleme and would include the Kastelli airdrome, which had been partially completed, obstructed, and abandoned. The effect of the German landings near Retimo and Heraklion would be achieved by drops of dummies and small forces charged with destroying communications.

With 530 C-119's (in place of the German Ju-52's) we could deliver in one lift all three of the combat teams* of the new airborne division as well as some of the diversionary forces. These organizations with their 105's in direct support should be able to seize the Maleme field on D-day even if they were opposed after the drop by ground forces of the size and composition used by the British. Our troops, landing with their fighting equipment attached and readily available, would not be caught without their rifles and crew-served weapons as were many of the Germans. The threat of other air drops could tie up a considerable number of enemy troops in their prepared positions near the other airfields. We could expect patrol forays from the defenders of Maleme shortly after our landing. Within four hours, the enemy reserve near Canea could be launched against us with a strong attack if enough vehicles were available to move their weapons. Well before that time our infantry would be launching an assault against Maleme supported by the registered fires of our artillery battalions.

Once the airborne phase of the attack has been accomplished, the airborne commander will employ normal infantry tactics. His initial lack of tanks and heavy vehicles is more than balanced by his surprise landing close to or on the objective where the enemy has been unable to mass reserves or to prepare an elaborate defense. Present anti-

*Each containing an airborne infantry regiment, artillery battalion and an engineer company.

tank weapons will provide some defense until heavier guns and tanks can be landed in the airhead or delivered by sea. (In operations where ground link-up with friendly ground forces is not an early possibility, the need for heavy tanks and their attendant supply problems may be eliminated by the development of light self-propelled guns capable of deep armor penetration.)

The lack of roads and the difficult mountainous terrain on the south of the landing areas would restrict motorized reconnaissance. The commander could then employ unused reconnaissance vehicles to assist in the gathering of the three days' initial supply dropped from the C-119's with the troops.

While the ground troops are preparing to launch their attack, the planes that delivered them are returning to the departure airfields. With efficient handling, the planes could return before dark with full loads of service personnel, additional engineers, or supplies. The choice would depend on the commander's estimate of the situation. If additional work is required to put the captured airfields in order, the engineers would certainly be given priority. If the orders were to build up an airhead, service personnel and supplies, in that order, would have to come in. If the enemy was capable of massing a formidable number of antiaircraft guns or there was a good possibility that the the weather would close in, it would be best to drop the maximum amount of supplies on the first day. If only 400 planes were allocated for an air drop of supplies, 2,500 tons or about seven days' supply for the combat elements would arrive to be gathered by the combat units with the transportation at hand.

Our plan should probably be a compromise between the above factors. Further loads would be balanced between engineers, additional vehicles, service personnel, and supplies. (The number of planes available on the first drop limited transportation to essential weapons carriers, reconnaissance and communication vehicles.)

Before the second German drops at Retimo and Heraklion late in the afternoon of D-day, the British garrisons

had received no orders to move elsewhere. We could expect a similar situation since our enemy would know that we could land another force at his rear if he concentrated all of his forces near Canea. With one airhead secure, our higher commander could then support the airborne assault with all the reinforcements needed to defeat the enemy.

We have seen how a German parachute division early in the war seized and secured a large isolated area. We believe that our new airborne division is capable of doing a similar job with fewer casualties in a shorter time.

Captain Doughboy—Infantry-Tank Team Commander, **by Lieut. Col. George B. Pickett, Jr., Armor—coming in the January QUARTERLY. The author tells what the rifle company commander needs to know about attached armor.**

S-4: Rehabilitation

By Lt Col Charles F. Coates, Infantry

EDITOR'S NOTE: The subject matter of this article is particularly timely to combat S-4's.

S-4 looked at his calendar of coming events and remarked that the regiment was due for rest and rehabilitation. "Regiments," he told Captain Blue, the Service Company Commander, "are just like humans. All work and no play makes them dull . . . . Well, it's time to start thinking about S-4's part in the rest and rehabilitation program, Harry," said S-4, looking pointedly at Captain Blue. "Tell me what you are going to do about it."

"Me?" said Blue. "I'm not S-4. I'm the Service Company Commander. It's not my baby."

"It will be," said S-4, grinning. "Didn't I tell you that I'll be attending an Army Supply Conference during the rest and rehabilitation period? This, of course makes you S-4 in addition to your usual duties . . . . Proceed, Harry; tell me what you're going to do for the regiment in the rest and rehabilitation program."

"Well, Major," said Blue, having stoically received the news of his additional duty, "the whole thing is really a paper problem. The regiment hasn't been fighting, and in fact—"

"Think of it as the real thing," S-4 broke in. "Tell me what you'd do if the regiment had been in combat and needed rest and rehabilitation."

"Many problems come to mind," said Blue. "First, of course, we have to move the regiment back to the rehabilitation area. Then I have to check with G-4 to find out what part of the camp site is ours and what areas are laid aside for training and recreation. Then I must see the regimental surgeon and ask him to get me information

regarding medical service and inspections. The final points I can think of right now are supply matters, added to the repair and replacement of equipment."

"Let's get down to details," prodded S-4. "Tell me more —much more."

"Well, number one item on my list is to see that warrant officer assistant of yours and get an up-to-date list of regimental requirements. If he's been doing his job properly and keeping a running estimate of the situation, this won't be hard to get."

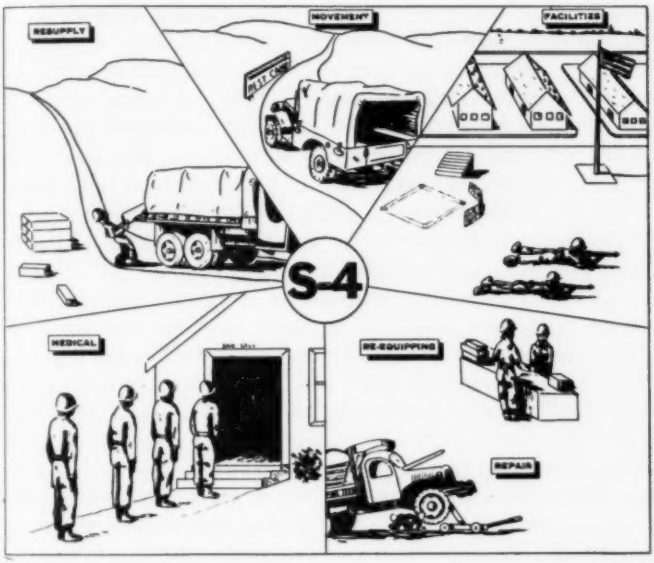
"There'll be no trouble with that," said S-4 quickly. "Do you expect to get any advance information from G-4? In the nature of a warning order, say?"

"Yes. As early as possible G-4 will give me as much information as he can. This information will include not only what we are going to do and when we are going to do it, but will in addition tell what the regiment will do *after* it leaves the rehabilitation area. This would be a big factor in requirements and training areas if any special type of operations were being planned. . . . Speaking of planning, ours can begin immediately after we get the warning order from G-4."

"You're off to a good start, Harry," said S-4 approvingly. "But from now on let's cover one problem at a time. You mentioned that you had several problems to consider, so let's begin with the movement back to the rest area and take up the problems in turn." S-4 opened his desk drawer and produced a chart. "Just for your convenience, Harry, here's a little sketch I prepared in my spare time." (See Figure 1)

"The first thing I want to know," said Blue, "is *how* the regiment is going to move—by rail, by motor, or a combination of both. If it's to be by motor, I want to check first on the transportation picture within the regiment and see just how much is available for the move. I'll want to know how the units will be grouped for movement, so I'll have to see S-3 for this. Once this is accomplished, I'll drop in on the division transportation officer, who maintains a table of vehicles for the division and can tell me where and when the needed transportation will be-

come available. Of course, when the time comes, he'll also publish movement orders over G-4's signature. These orders will contain the other points we're interested in—such as routes to be used, refueling points, and traffic control posts."



As S-4 nodded approval, Captain Blue, well wound-up now, proceeded enthusiastically into the subject. "Now, if we move by rail, Major, I'll need some other factors to play with. I'll take our rail movement table and make sure it's up-to-date, checking it of course with the division transportation officer to make certain. At the same time I'll request that facilities be made available where we can review our loading and tie-down procedures. Based on the information in the rail movement table and the desires of the regimental commander, the division transportation officer makes and publishes to us the train consist table and the individual train loading plan. Next he prepares and publishes the entraining table, and from there on it's up

to us. . . . Incidentally, all this information will come to us as annexes to the movement order. And here's another point: as soon as the movement order is out, the regimental commander will publish a list of train commanders, train medical officers, train transportation officers, train mess officers, and train quartermasters. During all this planning, of course, I'll be working closely with G-4 and the division transportation officer."

"Let's repeat and *re*-repeat that last statement." S-4 sat up straight and pounded his desk for emphasis. "It's the meat of the whole works. Regardless of how you move, *close coordination and careful planning* are necessary from start to finish if you want the job done successfully. Now" —S-4 relaxed again—"I believe you mentioned medical rehabilitation of the men as one of your major problems. Isn't that the surgeon's job?"

"The actual medical treatment is, sure, but S-4 is in the picture, too. It's quite a story, and here it is. When the men have been in the line for some time, quite a few of them may be temporarily unfit, and so we've got to see to it that all men in the regiment are checked and their ailments remedied. To do this we may have to use our own organic medics, though they're supposed to get some rest like everyone else in the rest area. There's the matter of immunization, for one thing. The regimental personnel officer will have to search his records and prepare a roster, and then the surgeon can do the shooting. We may get some help at the rest area, but if not we must do the job unaided. . . ."

"Hope for the best and expect the worst and you'll never be disappointed," observed S-4 with the philosophy of a seasoned supply man. "What about medical service during the move to the rest area?"

"We'll have it," said Blue. "We'll leave part of our collecting platoon and company headquarters in the old area until all troops have cleared. Before any troops arrive in the rest area, we'll have facilities set up with personnel from these same two units. Enroute, the battalion medical platoons will take care of their assigned battalions, with casualty collecting posts established by Army medical units

along the way. As for the regimental companies—like my own Service Company, for example—they already have their company aid men with them, and we can supplement these with men from the collecting platoon. This should give everyone adequate medical service."

"It should and it will," S-4 agreed. "Now, what about medical training in the rest area—are you in on that too?"

"I am indeed. S-3's responsible for the training, but I'm responsible for general supervision of the surgeon. Queer, isn't it—I already feel qualified to substitute for the surgeon if he attends one of those medical conventions. But seriously, what it amounts to is that S-3, the surgeon, and myself work hand in glove. Medical training in the rest area stresses first aid, hygiene, and sanitation because it pays off in combat. . . . Well, as you can see, S-4 is hip-deep in the medical situation."

S-4 grinned, "Harry, I'm going to attend that supply conference with the feeling that everything is in good hands. Somewhere along the line you've picked up considerable information that—"

"Wait," said Blue. "I'm not through yet. Next comes the replenishment of supplies. I—"

S-4 held up a hand. "Your enthusiasm is contagious, Harry; let *me* talk awhile. See if you agree. . . . You start on the supplies as soon as you know of the move. You call in the battalion S-4's and regimental company representatives and advise and orient them on the situation. Tell them to submit requisitions to you based on current shortages. Then you consolidate them. If you have time, you ask G-4 to send down some teams to conduct technical inspections of equipment to determine actual serviceability. Coordination will be the watchword—especially with S-3—to hold training to a minimum so that you'll have the time and opportunity for these inspections and inventorying. . . . You agree?"

"Agree," said Blue. "But you left out something. Supply economy."

"I was coming to it, and now that I've arrived at it—stress it. Good supply economy promotes combat efficiency and now's the time to start. Don't try to supply everyone

and every unit with entirely new equipment—that's waste. Keep equipment that is combat serviceable or repairable. We must have high standards of serviceability, but we must also make the best possible use of all equipment. In this connection, get together with S-3 and incorporate some supply economy subjects into the training program. The proper use and care of clothing, weapons, food, fuel, and motors are all subjects for consideration. It should pay big dividends. . . . Well, I've had my say; let's hear the rest from you."

"Well, Major, once we're in the rest area I'm going to recommend that the regiment have some thorough show-down inspections to determine shortages and serviceability. And if we haven't already had them, I'm going to ask G-4 for those technical inspections. . . . After this, we'll have to submit revised requisitions based on shortages and any equipment needed for replacements—or is it reinforcements?"

"Don't labor the point. What next?"

"Next comes *my* inspections, or visits. I'm personally going around to visit every unit and make sure that laundry and bathing facilities are adequate, and I'll find out if any clothing exchange services are needed. I want to see that the post exchange supplies are on hand and that we're able to get what is needed from the quartermaster sales stores. If commanders have any supply problems, I want to help solve them then and there, not two weeks later. After all this is done, I'll recommend that we have one final show-down inspection to check on completeness of clothing and equipment. . . ."

"I'm still listening," prodded S-4. "You have a few more points to round out before I'm through with you."

"Well, Major, speaking from a maintenance standpoint now, the problem of rehabilitating the regiment has two basic functions. First, get an accurate idea of the actual condition of equipment in the hands of the men. Second, see that it gets repaired or replaced, as the case may be. So far as possible, repair and replacement will be done by our own people—such as vehicle drivers, operators of equipment, and the organization mechanics. Further than

that, it's up to G-4 to provide assistance. As a matter of fact, I'm going to try and get the maximum help from G-4 on all this work because I want our own men to get as much rest as possible. Technical teams from division can come down and make repairs on the spot, which'll be a big help in speeding up the work. I'm going to get together with S-3 after I hear from G-4 and work out a schedule that will have training and recreation going on concurrently with these inspections. Our training program should include a review of organizational maintenance subjects—driver, company, and regimental—so that the men are familiar with the operations and services charged to each level. Every man should be able to get the maximum benefit from the rest and rehabilitation program, both in rest and training. . . . Well," Captain Blue concluded, "I think that covers the subject."

S-4 got up from his swivel chair, to which he was often a stranger in the course of his duties. "You've covered it very well, Harry. Just remember this—a current estimate of the situation is essential if you're going to get the regiment properly rehabilitated down to the last man. Give those men the services and supplies they need *when they need them*. It's a big job. . . . Any questions before I leave for the supply conference?"

"Just one," said Blue, looking glumly at his notes. "When do I find the time to get *myself* rested and rehabilitated?"

"That point," said S-4, "is not adequately covered in the manuals, I regret to say. But let me give you some advice on two counts. First, don't do much resting in my swivel chair—get out and look things over for yourself. And as to your personal rehabilitation, do a good job for the command and you'll find you've taken care of yourself as well."

Is Direct Support Necessary?

By Maj Emil V. B. Edmond, Infantry

This article is controversial and does not necessarily reflect approved tactical doctrine.—EDITOR

METHODS OF TACTICAL CONTROL

General support is that support rendered by a unit when it remains under control of the next higher commander. When in general support a heavy weapons company's fires are controlled by the battalion commander, heavy tank and heavy mortar companies by the regimental commander, the tank battalion and the battalions of the division artillery by the division commander.

Direct support is provided by supporting units when their unit commanders control their fires in support of a specific combat element.

Attachment of a supporting unit to a combat unit transfers command and control of the supporting unit to the commander of the supported unit. This commander is then responsible for the supporting unit's tactical employment, control of its fires, and its combat supply.

The dialogue you are about to read takes place between two lieutenant colonels. Both commanded battalions in operations, and now teach tactics at a service school. They sometimes get into heated discussions over methods and techniques. This discussion occurs in Lieutenant Colonel Smith's office, which Lieutenant Colonel Brown has invaded to argue the doctrine quoted at the beginning of this article.

Brown: Smitty, I'm ready to tackle some points of doctrine with which I disagree. You're my first target.

Smith: (Sure of himself.) Shoot.

Brown: The present doctrine concerning the methods of tactical control for crew-served weapons of the infantry regiment bothers me. I heard what you said in your conference this morning and we teach the same thing at the company level. During your problem I decided that it's high time some one started the ball rolling toward getting this matter straightened out.

Smith: (Sharply.) What do you mean—straightened out? Didn't you understand my instruction this morning? I thought I got my point across in good shape. An old combat man like you shouldn't have trouble understanding a simple thing like this.

Brown: Damn it, Smitty, that's the trouble. I understood what you said all right, but it sure hurt me to hear you saying it. I believe your brain is either clouded with theory or else you've forgotten all you learned in combat. I can't see why we need *direct support* as a method of tactical control in the infantry regiment. General support and attachment are all we need.

Smith: (Somewhat irked.) I disagree with you. But never let it be said that I don't have an open mind. Continue with your—well, just continue.

Brown: First I'd like to hear what you've got to say about the factors a commander considers when he attempts to choose between direct support and attachment, after he has decided that the situation requires a decentralized method of control. Deciding when to use general support is fairly simple, but a commander has difficulty trying to decide between direct support and attachment. What do you tell your classes about this?

Smith: One thing I tell them is that the *supported unit* does not have the problem of resupplying ammunition to the *supporting unit* when it is in direct support. *(Smith settles back comfortably in his chair; his manner clearly shows that he thinks he has scored a point.)*

Brown: That's a weak reason, Smitty—a mighty weak reason. You know that all crew-served weapons units of the infantry regiment, except those in the rifle company, are capable of resupplying their own ammunition, regardless of the method of tactical control employed. As far as the technique of ammunition resupply is concerned, it doesn't make any difference whether the *supporting unit* is employed in direct support or is attached to the *supported unit.* The *supporting unit* resupplies its own ammution in either case. You're still talking theory.

Smith: What you say is true, Brown, and perhaps you

do have the answer to my first point. But here's another reason which you won't find so easy to weaken. In direct support, the *supported unit* leader is not burdened with control of the *supporting unit.*

Brown: Theory again—just plain theory. A commander is not *burdened* with the control of an attached unit. He commands this unit in the same manner as he commands other elements of his command. The attached leader actually controls his unit and delivers the fire required by the supported unit. You'll have to do better than that to convince me I'm wrong.

Smith: What you say may be true, but I believe the supported unit leader has the burden of the employment of an attached unit throughout the action.

Brown: That's not so, Smitty! In both direct support and attachment the mission of the *supporting unit* is to assist the *supported unit* by fire. The only difference between the two is the question of who has the final say as to what fire will be provided. The *supported unit* leader should have the final say—and he does in attachment. I can't see how anyone could consider the factor of control, and then choose direct support over attachment.

Smith: There's where you're wrong, Brown—absolutely wrong. Don't forget that the attack plan consists of two parts: the plan of maneuver, and the plan of supporting fires. Each is just as important as the other. Now, when supporting weapons units are retained in general support, the commander himself employs their fires in accordance with his own plan. What you say is that anytime general support is not feasible for a certain weapons unit, the commander must weaken his plan of supporting fires by attaching weapons units to the maneuvering forces. Is that right?

Brown: No! No! He doesn't weaken the supporting fires by attaching weapons units. The fires are still there, and what's more, they are used where they do the most good.

Smith: I said *weaken the plan.* Whenever supporting units are attached, the commander deletes them from his plan of supporting fires. He has no control over them. For example, where all battalion heavy weapons units are at-

tached to rifle companies, about the only thing left in the battalion plan of supporting fires is the artillery and heavy mortar support, which is indirect fire and doesn't entirely satisfy these days.

Brown: Well, I still can't see how a unit operating in direct support fits into any plan of supporting fires. Anyway, if attached, they can provide the same support as in direct support.

Smith: I knew it!! I knew you'd bite. Listen, Brown, I commanded a heavy weapons company during the last war. I trained my platoon leaders in all the angles of giving good fire support. They knew where to pick the best firing positions to enable them to support the rifle companies instead of getting knocked off in the first round by enemy mortars or neutralized by enemy small arms fire. They knew the safety rules pertaining to their own guns, and knew how to use them without shooting up the rifle troops they were supposed to support. Heavy weapons men are specialists, just like the artillery, and there's good reason for letting them operate in direct support, rather than attachment, so they can have some say-so in the matter. Trouble with you is that you're an idealist. You've placed the rifle company commander on a wonderful little pedestal. I disagree with you, because I know that a rifle company commander was frequently mighty thankful for someone to give him the fire support he needed in the most effective way possible. Hell, the rifle company officer usually has all he can do to direct his rifle platoons and organic fires.

Brown: He has communication. . . .

Smith: Sure he has, but the impetus of fire support should be from rear to front, just like supply. Liberate the commander from worrying about whether he is going to get that sack of beans, or that 75-mm rifle fire. The artillery used the direct support system with wonderful results in the past war. They have all three, general support, direct support, and attachment. Why teach a different system in the infantry?

Brown: You're prejudiced. I still want to hear about the plan of supporting fires. You haven't convinced me yet that

a unit operating in direct support does so according to the battalion commander's plan.

Smith: Ever hear of the attack of a fortified position? Direct fire cannon operate in direct support of assault rifle platoons, and fire into pillbox embrasures with the most detailed fire support ever planned. Those direct fire cannon shouldn't be attached to the rifle platoons, either, because some of the cannon are mounted on tanks, which can't even begin to rejoin the rifle company during reorganization until enemy mine fields are breached. How would you feel if you were a platoon leader with some tanks attached to you which were 500 yards away on the other side of an obstacle?

Brown: I can't see why attachment wouldn't result in the same fire support for the rifle company. Also tanks could be reattached to another unit. Anyway, you're talking about a special operation.

Smith: Yes, they all say that in the end. Special operation! But you're wrong about reattaching units so easily. It may be easy to write it on paper, but it sure isn't easy in battle. Why, attaching units to rifle companies is one sure way to scatter them from hell to breakfast. Also the terrain varies as the attack progresses. From time to time the battalion commander may want to change various supporting units from general support to direct support and perhaps back to general support. It isn't so hard when the heavy weapons company commander has his finger on his own boys, but it is pretty darn difficult to get them back when they're attached to the rifle companies.

Brown: I can't agree with you on this point, Smitty. I believe it is absolutely necessary that the supported unit leader get the fire support he needs. Yes, I know the *supporting* and *supported* unit leaders confer before an action to decide what fire support will be provided. But in the event of a disagreement, the *supported* unit leader should have the authority to *order* the fire he needs. This also applies during the action. When the *supported* unit needs fire, it should have it when and where it needs it—from a unit which has the sole mission of supporting it. This is *as-*

sured when the *supporting* unit is attached, but not when it is in direct support.

Smith: I can't argue with you on this point. I agree that there should be no question about the supported unit getting the fire it needs. Have you any other reasons why you think direct fire support is unnecessary?

Brown: Yes. In your conference this morning you stated that in most situations the firing positions occupied, time and routes of displacement, and targets engaged are approximately the same in direct support and attachment. To me, this means in reality that the fire which can be delivered by the supporting unit is the same in both direct support and attachment. Do you agree with that?

Smith: I've got to admit that I do.

Brown: Okay. If the firing positions and the targets engaged are the same in both methods, and we have agreed that control should be with the supported unit leader, then there is no need for direct support as a method of tactical control in the infantry regiment. And, I have one more point.

Smith: Let's hear it.

Brown: Just this: The means of communication employed between the *supported* and *supporting* units are the same in both direct support and attachment. So nothing is gained, as far as communication is concerned, by retaining direct support as a method of tactical control. *(Brown settles back in his chair in a manner which indicates he has finished presenting his arguments.)*

Smith: Well, Brownie, you said that direct support should be eliminated for all crew-served weapons of the infantry regiment. How does this apply to the heavy mortar company?

Brown: You know that the heavy mortar company is normally employed in general support. When general support won't provide the best fire support for engaged units these units are best supported by attaching to them platoons of the heavy mortar company.

Smith: Do you base that statement on the fact that when a platoon of the heavy mortar company is assigned the

mission of supporting a single unit of the regiment, the supported unit leader should have control of this platoon?

Brown: That's right. The same consideration applies to the mortar platoon of the heavy weapons company. Also in the heavy weapons company, when general support is not practicable, the machine guns and 75's should be attached to the units they are supporting. This makes sense when we consider that they will be occupying firing positions in the rifle company commander's area.

Smith: Well what about the tank company?

Brown: Direct support is not needed in the tank company. The company is either employed as a unit or its platoons are attached to rifle units. That's what you teach now, isn't it, except for that special case in the attack of a fortified position?

Smith: That's right, Brown. But, I can see now that you've paid no attention to my side of the picture. Modern weapons are getting more and more range all the time. To insist on attachment whenever general support is not feasible is to make the lower unit commander responsible for a sizable area in his rear. Take the 75-mm rifle platoon. Experience on Okinawa showed that this weapon should be emplaced well behind the line of departure whenever possible, otherwise it will be neutralized by enemy machine guns. How will attachment work best when the guns are so far back? We want our company commander's attention forward, not to the rear.

Brown: You're talking in circles, Smitty. You just admitted that the firing positions occupied are the same in both direct support and attachment.

Smith: That's true, I did, didn't I? I tell you, Brown, you've presented a good argument from the theoretical side, but when analyzed in terms of actual battle conditions, it flops completely. Factors of time, distance, and human personality will make direct support a success for infantry supporting weapons units just as it has for the artillery. I say that a weapons unit leader will do a better job in direct support because he is his own boss, has a definite responsibility, and will strive to give the best support

possible. Put him under the yoke of attachment *unnecessarily,* and immediately his spirit is depressed. If you don't believe it ask anyone who has been attached.

Brown: Then why not do away with attachment? Either one or the other must go, because they produce the same results, or should, according to our doctrine.

Smith: Attachment is vitally necessary at times. It is used when a unit is sent on a separate mission, or when the unit is separated from its parent by distance or time. You know, when a unit is out by itself, security demands that one commander have complete control of all parts of his task force. We learned that at Pearl Harbor. Now, I do agree with you to this extent: That combat in the future is likely to see units spread out more, with attachment becoming more *frequent.*

Brown: As it should be, I can see some of your arguments, Smith. But, I never saw direct support used by the infantry during the past war, and I bet I don't in the next.

Smith: I'll take that bet and we may soon see who collects.

Towing Ski Troops

By Maj Ingebrigt Solum, Norwegian Army

EDITOR'S NOTE: At the time of this writing, the author was a guest student at The Infantry School. He is Executive Officer of the Norwegian Infantry and Winter Warfare School, has been Chief Instructor at that School and head of its Department of Experiment. This article, which discusses some technical and tactical considerations in regard to the towing of skiers, is published to give QUARTERLY readers an insight into the methods and techniques used by foreign armies. The Infantry School feels that the article merits consideration by American arctic warfare instructors and students.

* * * * *

In winter warfare, well-trained, well-equipped ski troops have successfully proved their superiority over more road-bound units not adequately trained for movement and combat in snow and extreme cold. A characteristic of well-trained ski troops is *mobility.*

This mobility can be further increased by towing ski troops behind vehicles over roads and winter roads and across country where there is no previous trail or track.

By using suitable vehicles for towing ski troops, units are capable of rapid advance to the battlefield and rapid tactical movement on the battlefield. They may be more capable of performing reconnaissance and security missions and delivering harassing blows against the enemy—attacking his bivouacs, destroying his supplies, and breaking his communication routes deep in his rear areas. Sleds carrying heavy weapons, necessary supplies, and tentage may be towed behind the same vehicles.

For towing along plowed roads, any type of vehicle is suitable. For cross-country towing, track laying vehicles are necessary—the light oversnow type being best for this job.

The training of towed ski units presents certain technical and tactical considerations. Technically speaking, the

number of skiers who can be towed behind one vehicle depends on:

Type of vehicle
Type of terrain
Snow conditions: depth and consistency
Cargo load on vehicle and on trailer or sledge towed by the vehicle
Technique of skiers
Ropes available

Under good conditions an entire rifle platoon may be towed on a road behind one 2½-ton truck. Under extremely favorable conditions the same rifle platoon may be towed across country behind a cargo carrier, M29, although under good (but not extremely favorable) conditions the maximum load is two squads or their equivalent. In wooded areas, where the track makes frequent sharp turns, an M29 normally can tow only one squad.

For long range movements the tow-load should be slightly reduced, so that skiers from one vehicle may be temporarily transferred to another in the event of mechanical breakdown, damage by the enemy, or other cogent reasons.

The towing rate depends on: type of vehicles, type of terrain, snow conditions, cargo load, technique of skiers, and the number of skiers behind each vehicle.

When being towed, skiers are spaced at equal distances behind the towing vehicle. With average skiers there should be a gap of at least seven feet between the back of one man's skis and the tips of the following man's skis. With well-trained skiers this gap may be reduced to four feet.

Because of exhaust gases and the snow thrown from the tracks, the leading skiers should be about 14 feet from the rear of the vehicle.

Two types of rope arrangements may be used for towing troops behind wheeled or tracked vehicles along roads or across country. (See Figures 1*a* and 1*b*.)

In Figure 1*a* you see two ropes, one for each track of the vehicle. In this arrangement, the skiers are positioned outside the ropes.

In Figure 1*b*, called the "centralrope," there are smaller rope attachments for each individual. This arrangement has certain advantages over the two-rope system, but is more difficult to improvise. Advantages are: (1) Each skier gets relatively more space, since he is more flexibly fixed to the towing rope—an advantage that should be utilized in towing over rough terrain; and (2) a skier who loses his balance and falls will usually be drawn under the centralrope, thus giving the following skiers a chance to by-pass him.

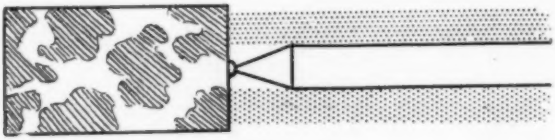


Figure 1*a*. The two-rope arrangement for towing ski-troopers.

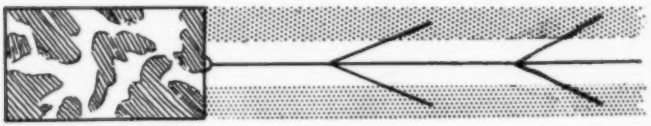


Figure 1*b*. The "centralrope" arrangement for towing ski-troopers.

The several methods of towing should be selected and used according to the tactical situation, the terrain, and the movement distance. Actual methods are:

a. Each skier ties and uses a butterfly knot in the rope, holding his poles in his outside hand (see Figure 2).

b. Each skier uses his poles for connection with the rope, by making one inside turn of the rope over the tops of the poles and thereafter placing the poles under his outside arm, with the rings of the poles against his back and upper arm (see Figure 3).

Each method has certain advantages over the other. Using method *a*, the skiers are quickly released from the towing vehicle; therefore this method is best when contact or enemy ground action is imminent. However, method *a* is unsuitable for long range movements, because a relatively high speed cannot be maintained without fatigue, particularly in the skiers' arms.

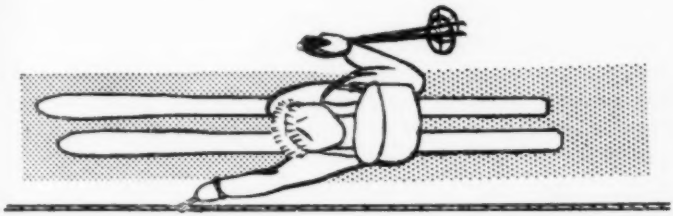


Figure 2. In the first of two towing methods the skier ties a butterfly knot in the tow-rope, loops the knot over his wrist, and grasps the rope.

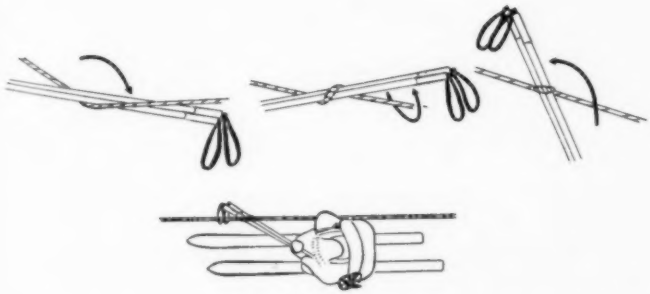


Figure 3. In the second towing method the skier loops the tow rope over his poles and holds onto the poles in the manner shown.

Using method *b*, the skiers get rest for both arms and body and can arrive at their destination in good physical condition. Therefore this method should be used when contact or enemy ground action is improbable. Another advantage in this method is that a skier can use his hands to prevent frostbite during movement in extreme cold.

Method *a* should be modified when towing through dense wooded areas where knots on the rope may prevent the vehicles from proceeding after the skiers are released. Skiers should grasp the rope *without tying the butterfly knot.*

Although being towed behind vehicles is normally an easy mode of transportation for the average trained skier, there are certain points of individual technique that should be emphasized in training. For example, when a road or a track makes a turn, the loaded towing ropes always tend to straighten out and make a short cut—and so, to prevent falling and to keep the track, the skiers, except for the last man on each length of rope, must place their weight in the opposite direction of the turn. That is, outward in relation to the turn (see Figure 4).

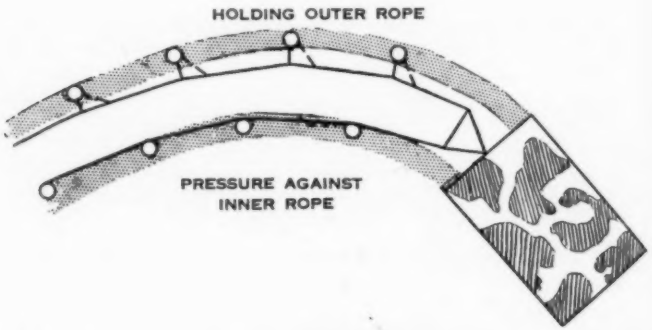


Figure. 4. To prevent falling and to keep the track, skiers place their weight outward on turns.

When making sharp turns, the speed normally is reduced and the skiers move rapidly in a forward-outward direction, thus assisting the vehicle to make the turn and preventing themselves from being unbalanced and hauled along in the short cut (see Figure 5).

Safety precautions are necessary when towing skiers. An alert *lookout* man is charged with stopping or slowing the vehicle to prevent unnecessary casualties due to speed

or obstacles. He observes the skiers and other vehicles and gives the driver orders, and signals the skiers for slowing and stopping. It may be desirable to have the commander of the towed sub-unit actually on the vehicle, though obviously he must be on skis if contact is imminent.

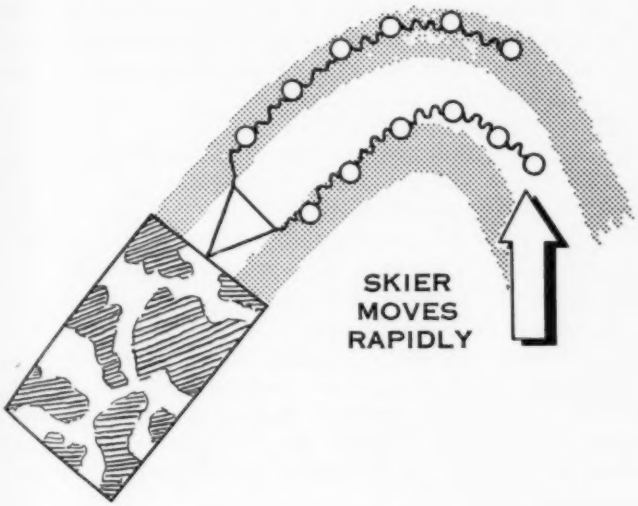


Figure 5. On sharp turns skiers move rapidly forward and outward.

Downhill towing should not be practiced where skiers are able to maintain the same or better speed alone. In such cases, skiers drop the ropes, continue downhill in column and are ready for towing when the vehicle has caught up to the head of the column again.

Frostbite is an ever-present danger in extreme cold. For detecting it quickly, skiers keep alert for signs in each other's faces. They are placed in pairs on the tow-rope, each man of the pair observing the other. Halts are frequent and of short duration. During these halts tracks and ropes are interchanged and frostbite remedies are applied.

From a technical (not tactical) point of view, routes are selected to give the greatest speed between points, and

reconnaissance of these routes may be performed by skiers, oversnow vehicles, or by air, depending on the tactical situation, weather, and the distance and time available.

In mountainous terrain trafficability (still technically speaking) is determined largely by the steepness of the slopes. In lowlands, trafficability is determined mostly by the character and depth of the snow cover. Trafficability is also greatly influenced by thickness of woods and brush. Dense woods are an obstacle to all types of oversnow vehicles.

When reconnaissance for a long range movement is performed by air or skiers, the column must be preceded by at least one oversnow vehicle for laying the best suited track. Empty cargo carriers are useful for this job. The track laying detachment marks the route, and when strange tracks cross or deviate from the route, they are obliterated at the point of crossing.

The track is made as simple as the terrain permits, avoiding steep slopes and other obstacles, since even minor obstructions may retard the movement. When difficult terrain cannot be by-passed, a high degree of cooperation between the towing vehicles and its skiers is mandatory. Skiers assist with shovel work, trail-breaking, and cargo carrying.

Tactically speaking now, the selection of routes often does not fit too well with the technical needs. The best suited routes technically very often do not give the necessary concealment for daytime movement, since tracks in the snow are easily seen and cannot quickly be concealed. Though, for example, dense wooded areas are technically undesirable, they may, after thorough reconnaissance (time permitting) prove tactically sound.

Although air superiority will give a degree of protection, an enemy will always be able to maintain a certain amount of observation and employ hit and run tactics, weather permitting. Thus weather information with detailed forecasts is very important to the commander when selecting his route. Obviously, movement in fog or snowstorms aids surprise.

In many cases a commander will decide to move his towed ski troops in darkness to accomplish his mission. Towing along plowed roads is not difficult at night; towing on frozen lakes at night is very easy. In brilliant moonlight, cross-country towing over previously reconnoitered routes is possible at relatively high speed.

In night towing without moonlight, the selected routes should avoid all kinds of rough terrain and wooded areas (except reconnoitered routes through woods), and the speed should be greatly reduced to prevent injury to the towed skiers. For cross-country night towing (without moon) only blackout lights should normally be used, as exposed lights are easily detected by enemy air reconnaissance, particularly in cold weather.

Tracks in snow are easily seen. With improper track discipline, drivers and skiers may give enemy air or ground reconnaissance information about the composition of the force using the route. Usually, tracks of oversnow vehicles cannot at once be concealed. They should, however, be obliterated as much as possible by using two small trees tied together behind the last vehicle. (See Figure 6.)

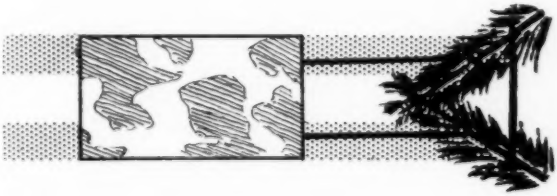


Figure 6. Two small trees towed by the last vehicle obscure the track of a ski-column.

This method alone normally is not enough to prevent the enemy from discovering the trail. It does, however, prevent his air and ground reconnaissance elements from accurately reporting the type and size of the force that used the trail. The enemy will not know when the trail was broken—just a few hours ago or many days ago.

It is also much easier from the air to discover a *deep* trail with clear cuts, especially during sunshine with dark and long shadows.

A trail with its edges broken down is easily obliterated by snowfall and wind, particularly where the trail crosses open terrain.

Tracks from oversnow vehicles and towed skiers may be used to mislead the enemy to dummy positions and bivouacs. Highly mobile ski units may rapidly perform such deceiving measures.

In conclusion, men on skis may also be towed behind motorcycles and horses. These means, however, are normally roadbound and have limited towing capacity. They should be used for towing small detachments for short range movements. A horse column may, however, be used for towing units along narrow roads or trails in wooded areas where wheeled vehicles are not feasible.

Towing behind motorcycles or horses involves no additional problems for skiers trained for towing behind vehicles.

SUMMARY

The inherent mobility of ski troops is increased by using tow vehicles. When a commander fully understands the fundamental technical and tactical factors involved, his unit may be more capable of rapid movement to the battlefield and rapid tactical movement on the battlefield. The unit will enter battle in the best possible physical condition.

See *Principles of Air Transportability*, by Captain James B. Hewette, in the January QUARTERLY. Moving men and cargo by air, the author says, is not just a matter of stuffing them into planes and taking off down the runway. There's considerable know-how involved.

More About "The Colonel's Motors"

By Lt Col John T. Ewing, Infantry

SCENE: *Office of the Regimental Commander, 75th Infantry.*

TIME: *1400, 7 April 1950*

PRESENT: *Colonel B. F. Finch; Major Smoot, S-4; Major Beeche, S-3.*

Colonel: In spite of the improvements we've made, I'm still not satisfied with the time it takes for us to put troops on the battlefield in either offensive or defensive work.

Beeche: Sir, we were commended by division - - - .

Colonel: Not what I'm thinking about, Beeche. Our tanks were at the rear of the regimental column; stayed at the rear until I found I needed them, and yet they rolled into initial attack positions and were ready long before the battalions even got there! Send for Hogan. *(Captain Hogan, the Regimental Motor Officer, has recently returned from the Motor Officers' Course at The Infantry School. See THE COLONEL'S MOTORS in the April 1950 issue of the QUARTERLY—Editor.) (Enter Captain Hogan.)*

Hogan: Yes, sir.

Colonel: Now, Hogan, this meeting is a session about the mobility of the regiment. I covered all I wanted in the critique last evening with our people—insofar as our present use of trucks and tactics go. We're marching too far on foot to the battlefield, and there's too much discrepancy between our people and those who have track vehicles and permanent rides. I'm thinking mostly of our rifle companies.

Hogan: We asked for personnel carriers from division in plenty of time. Major Smoot went up twice and I went to the CP once to get a route changed which would bring the trucks down a road closer to the position. The road I wanted was already reserved for the 18th Infantry. Our

carriers had to go through a mud pot before we got them, and stuck tracks delayed them 38 minutes.

Colonel: Captain, I know about your motor officer troubles every time we go in the field. That's why I have you as a staff officer. You see, Hogan, what I'm getting at are not the incidents of a field exercise—I want to get into our basic transport set-up of equipment and concepts of employment. I want to load up my people in trucks and travel cross-country until enemy air or artillery run us out of the trucks. . . . Well, at least until intelligence pretty well indicates how far we can go before dismounting. And that's further than we ever rode to date!

Hogan: Sir, I wrote you about a new family of trucks when I was at motor school.

Colonel: Well?

Hogan: I saw one of those trucks double a 2½-ton on a circular obstacle course in a race. I'll bet those trucks would give you the mobility you are speaking of.

Colonel: Hogan, I don't want any tracks. Too much maintenance, too noisy, and too much dust on dry ground.

Hogan: Colonel, these weren't track-laying vehicles. The one I saw was wheeled, had an air-cooled engine, and it appeared to be able to keep up with or out-perform any tank I've ever seen.

Colonel: I don't get it, Hogan. I don't want to contradict my staff officers, but I just plain don't believe you.

Beeche: Colonel, I've talked to Hogan about this subject and if he'll explain I think you'll be interested.

Smoot: That's right, sir; he's pretty well up on this thing. I'd recommend you hear about these new trucks.

Colonel: Why do you people wait so long to get me informed? All right, Hogan; but remember, stick to practicalities.

Hogan: Well, sir, I'll have to review a fundamental or two. You know, the principal reasons for tracks are to spread vehicle weight and, to a certain extent, minimize the "digging in" effect. From these two principles, we get much of the tank's mobility. With the weight involved, tracks are necessary to distribute weight and get low ground

pressure—and, of course, it takes a lot of engine. A wheeled vehicle, on the other hand, is comparatively light and, characteristically, has been lightly powered consistent with planned performance on roads—the same for wheel sizes, transmissions, and suspension. As a matter of fact, all wheeled vehicles we have in service are designed *primarily* for operation on roads. The winches, multiple axle drives, and big tires we have are merely modifications of an original design not intended for cross-country work.

Colonel: You make our trucks sound like motorized field expedients!

Hogan: Just so, sir! Recall how you get bumps and jolts when you ride cross-country in your jeep or that old command car? Well, if you recall also, whenever you ride in a tank, you get only smoothed-out pitches and rolls, even over the roughest kind of country.

Beeche: That's so.

Colonel: Continue, Hogan.

Hogan: Well, sir, it isn't because of tracks that you get the difference. It's because the tank's road wheels are all independently sprung on torsion bars. When a tank road wheel hits a bump or hole through the track and goes up or down, the mate to that wheel on the opposite side of the tank just plain ignores the action. In our trucks - - - .

Smoot: Sure, when one wheel goes up, the wheel on the other end of the axle goes down!

Hogan: Sir, that's not quite it, at least not always. Most of the time the other wheel can't go down—unless there's a hole just opposite. What happens is that vertical forces are transmitted through the springs directly to the body - - - .

Colonel: Never mind, Hogan. I get the point. Why does the tank give such a good ride?

Hogan: Colonel, with the tank's torsion bar suspension of individual road wheels the vertical or horizontal forces in the wheel are turned into twisting force. The sharp upward, downward, forward, or backward jolts are dampened out considerably. You get comparatively mild pitches and rolls instead.

Colonel: Clear enough. Why now, do we need this air-cooled engine business?

Smoot: That's the new family, sir. Reduces parts, eliminates liquid coolants, and anti-freeze problems - - - .

Colonel: May be; at least *I* know air-cooled means no liquid coolants, except oil. Go on, Hogan. What's this family business?

Hogan: Well, sir, the Army has developed a family of air-cooled engines of three branches: one with a small piston, one intermediate size, and one large size piston for each branch. Within and between branches, in some cases, a lot of parts are interchangeable and the parts problem is greatly reduced. In addition, within certain limits, you can build four, six, or eight and even 12 cylinder engines, using many of the same parts. This family system also lends itself to variable cylinder arrangements such as V or opposed type, depending on desired design for a particular vehicle.

Colonel: All right, but why do infantry people have to get involved in this engine business?

Hogan: Sir, we can't get cross-country mobility without expending power. It takes a lot of horsepower. Engines in the present trucks can't take the load of fast cross-country travel. Pound for pound of engine weight, these air-cooled engines put out more horsepower than conventional liquid-cooled engines. We don't need the horsepower required by tanks at all, of course, because we are not faced with the friction load of tracks—nor do these trucks have the armor weight to move about. We do need about twice as much horsepower as we have now. Weight and size of conventional liquid-cooled engines would be prohibitive. Besides solving our problem, the new engines represent advancement of efficiency in the automotive field, and I feel we need all we can get in more efficient engines.

Colonel: How about gas mileage?

Smoot: The engines take much more gasoline, compared to present trucks, mile for mile on a paved road. However, in terms of cargo or personnel by the ton per mile per

hour rate, the new carriers with these engines indicate performance superiority.

Colonel: That right, Hogan?

Hogan: Yes, sir. We'll use more gasoline per vehicle but we'll get more out of our gasoline, I am sure, than ever before.

Beeche: Sir, there's no gasoline yardstick for mobility, surprise, and effective supply on the battlefield. I strongly believe in this thing and would like a chance to develop tactics and logistics with the actual trucks.

Colonel: All right, Hogan, I can see you have to have the separate wheel hangers and the light powerful air-cooled engine. Then what? Get on with it.

Hogan: Well, sir, we put in locking differentials so we still get a wheel to turn when the opposite of a pair is spinning in mud, snow, or ice.

Colonel: Right; that helps cross-country mobility.

Hogan: Well, sir, a semi-automatic transmission - - - .

Colonel: Now I don't know about that—we aren't "fat cats."

Beeche: The automatic transmission is one of the best features, sir. Reduces driver training, too.

Smoot: Prolongs engine life by limiting engine abuse and overloading.

Colonel: I can see that the deck is stacked, but the transmission appears to be a luxury device. You'll have to convince me.

Hogan: Sir, remember when you cross furrows on a plowed field or cross a shallow ditch, how the driver will often lose control and stall because of the difficulty of shifting gears—or how a driver will lose control in a tough pull because he can't shift down in time?

Colonel: Certainly, certainly! What of it?

Hogan: Well, sir, this semi-automatic transmission relieves the driver of this problem. The proper engine RPM for the load is taken care of. Much time is saved in traveling cross-country. Fatigue of driver and passengers is lowered. Besides, the difficult problem of teaching drivers to "double clutch" is completely eliminated. From a mainte-

nance point of view, an overloaded engine has a short life. Except in rare circumstances, the semi-automatic transmission will not permit the engine to be overloaded.

Colonel: That's enough, I suppose. What else, Hogan?

Hogan: That's all, sir, except one thing which hasn't been done yet in the matter of taking advantage of wasted space.

Colonel: What is that?

Hogan: Colonel, this is mostly my own idea, but there's a lot of wasted space around the overall cube of our trucks. Our truck bodies should have the new look. Slab-sided clear out to the outside of the wheels. The bed of our trucks should be in the plane of the axles and not 29 or 30 inches higher as they are now. We'd get more space—a lower silhouette. If we could get the engine and power train inside a cube-like body, we'd be amphibious all the time.

Colonel: Absurd, Hogan! It sounds to me as though you'd have us all riding around in motorized bath tubs! You've got be be realistic about this business. As little as I know technically, I know it's absurd.

Hogan: Well, sir, I just - - - .

Colonel: Captain, look at the latest cars on the road. They don't - - - why! Well - well! Of course, Hogan, there may be something to what you say. Certainly there is! We would get more space for the overall size of a truck, yes. Waterproofing would be a big thing—worth it if it would float. This all might be put in a requirement. Smoot!

Smoot: Sir?

Colonel: Send in coffee! Now I appreciate all the technical design of a cross-country carrier, but it seems to me we might be pressed in tactics and logistics to take advantage of the mobility it would offer.

Beeche: Colonel, a number of times during my training in the Desert Training Area during the war, I saw armored units adopt formations of track vehicles. That's given me some ideas.

Colonel: Major Beeche, we're not going to fight out of any trucks—Hogan's type or any other.

Smoot: Sir, Major Beeche, I believe, is thinking of movements. Coffee, sir?

Colonel: Yes; no sugar today. Go ahead, Beeche.

Beeche: Sir, in moving to the battle field in personnel carriers, we invariably get strung out in a long column of trucks. Even after detrucking, it takes a long time to assemble a battalion—control is at a minimum during this time.

Colonel: We know that.

Beeche: Well, sir, with Hogan's carrier we could feasibly adopt formations of trucks. A carrier formation, six trucks in width, would reduce our column length tremendously.

Hogan: About five-sixths of the length would be eliminated, sir.

Colonel: Yes, let's see - - - - . And a fine area target for artillery to register.

Beeche: A calculated risk, sir. Enemy air has us either way, too.

Smoot: Colonel, Hogan tells me that in much of rolling terrain with minor obstacles we can march ten to fifteen miles in an hour.

Hogan: Presuming, of course, no enemy artillery or air.

Colonel: Perhaps. I would question your figures until I could try it.

Beeche: (Aside to Smoot) I think Hogan's figure is conservative.

Smoot: Me, too.

Colonel: How do you expect to exercise command control of this thing?

Smoot: Captain Hogan has some good ideas.

Beeche: That's right, Colonel. I believe we could work it out. More coffee, sir?

Colonel: All right, Hogan. NO SUGAR!

Hogan: I talked to some men, sir, who told me about control used in what they called battle drill - - - .

Colonel: Pass that cream, Beeche. Go on, Hogan.

Hogan: Well, sir, it seems this track outfit moved in a variety of formations of basic units. Each basic unit comprised about 12 tracked vehicles or so. Three or four vehicles wide and about the same number deep was the size

of the basic unit or company. The battalion commander drilled the companies in cross-country formations so that he could adopt a variety of geometric formations which suited terrain requirements or tactical employment. In the initial stages of training, voice radio was used. Later on a system of relatively fast route reconnaissance and guide vehicles was used. Apparently SOP and the Guide Vehicle System became highly developed and the formation worked under radio silence.

Colonel: Your opinion, Beeche?

Beeche: I agree in theory with what Hogan has said, Colonel. In actual practice we would have to exercise great control over drivers. Our officers and noncoms would have to be trained to handle control. Drivers would vary and we wouldn't always get the same ones on personnel carriers. It would be necessary to train and integrate our weapons company vehicles into personnel carrier formations to maintain tactical continuity—even artillery would come into it. Training requirements would be over and above present ones. The truck companies furnishing personnel carriers would need training. SOP and special training operations would be necessary to provide proper reconnaissance and route guide and control. However, sir, the tactical advantages might be very great on a higher level of command as well as being a local advantage to us. I feel the gain in mobility at any level would outweigh the disadvantages of training.

Colonel: Smoot?

Smoot: Sir, these cross-country carriers would afford us supply support over and above anything we have to offer now. I don't believe we would have to increase the organic vehicles. These carriers burn more gasoline mile for mile until you consider them on a ton per mile per hour basis. On this latter basis, they would be an advantage in computing overall fuel consumption requirements. Burning gasoline to gain time is profitable in battle areas. Hauling rations in the communication zone would not be profitable.

Colonel: Fantastic. I'll take this up with the general. Good day, gentlemen.

Airborne Quartermaster Parachute Maintenance Company

By Capt William J. Hojnacki, Infantry

Many service personnel are unaware of the existence of the Airborne Quartermaster Parachute Maintenance Company in the Airborne Division. Little publicized though it is, this is a very important unit. Without it, the airborne division could neither train nor fight.

The Parachute Maintenance Company services the paratrooper's final means of transportation into combat—his parachute. The company also services other parachute equipment—the bundles and containers attached to cargo parachutes. Services consist of inspecting, packing, maintaining, and supplying parachutes and parachute equipment.

A unique army unit, the PM Company requires personnel who are highly trained and keenly aware of their responsibilities. Constantly confronting the parachute rigger is the fact that he is dealing with the lives of men, for the 'chutes of an airborne division are packed by riggers of the Parachute Maintenance Company. When a jump is required, paratroopers simply draw their parachutes, adjust them as they would a new cartridge belt, put them on and use them.

Airborne parachute maintenance is only as old as the first parachute organization—the 501st Parachute Battalion, activated in November 1940. At that time parachute maintenance was as highly experimental as all other airborne activities.

In June 1940 the War Department ordered the organization of a "Parachute Test Platoon" to be under the control of the Commandant of The Infantry School. To assist

this project, the Air Corps made available a warrant officer and four riggers with 21 parachutes—all detailed from Wright Field, Ohio, where the Air Corps had long maintained a parachute testing organization.

U. S. Army parachutists first jumped in August 1940. Their aircraft were Douglas B-18 two-engine, low wing, medium bombers. Each parachutist used the then standard Air Corps T-3 free type (modified) back pack parachute. A test type emergency 'chute was also added. Two weeks later, the first mass jump took place before a large group of high ranking officers who were enthusiastic about its success. Thereafter, mass jumping became a regular part of the training program.

When the 501st Parachute Battalion had progressed to mass jumps, additional riggers were needed, and it was decided that henceforth airborne units would furnish their own riggers. Volunteers were trained at the Air Corps Technical School, Chanute Field, Illinois, and were assigned to Headquarters Company, 501st Parachute Battalion as the "Parachute Rigger Section." At that time this section's strength was 18 men.

As field artillery and engineer parachute battalions were activated, rigger sections were included in their tables of organization. Rigger personnel continued to be trained at Chanute Field.

In the Spring of 1942, infantry battalions expanded to regiments and rigger sections to platoons (Parachute Maintenance and Supply Platoons) which were assigned to the Service Companies of the regiments. Strength per platoon, at that time, was two officers, one warrant officer, and 47 enlisted men.

Came the rapid expansion of airborne forces. Chanute Field could no longer handle the increasing rigger trainees. In May 1942 the War Department authorized the Parachute School at Fort Benning, and one of its resident courses was the Parachute Rigger Specialist Course. By January 1944 the Parachute School had qualified nearly 2000 officers and men as riggers.

Also in May 1942, General William C. Lee (then a colonel) was ordered to England to observe and study British

airborne organization and technique. He was to make recommendations concerning the organization and employment of U. S. Airborne troops. Upon his return to the United States, he recommended the activation of an airborne division in the American Army. Actually two divisions were activated on 30 July 1942—the 82d and the 101st.

With the formation of airborne divisions, regiments retained their Parachute Maintenance and Supply Platoons until December 1944. Before this date, the various Parachute Maintenance Platoons of the division often operated in the same building, each platoon working under its own officers. The logical step of organizing all platoons into one division Parachute Maintenance Company was taken during the Battle of the Bulge. The T/O&E drawn up then varies little from the one now in use.

MISSION AND ORGANIZATION

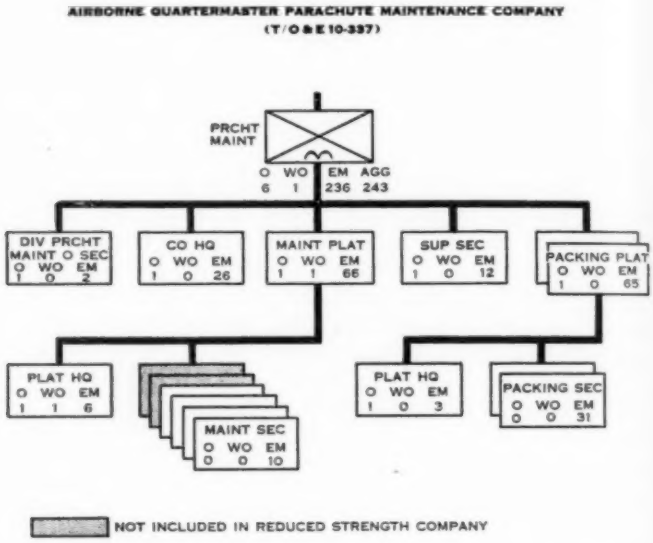
The mission of the Airborne Quartermaster Parachute Maintenance Company is to pack, maintain, and supply the parachutes and parachute equipment used by the airborne division in training and combat. The company requisitions and issues all Air Force equipment used by the division and its attached units.

In the Chart you see that the company consists of six main groups:

Division Parachute Maintenance Officer's Section
Company Headquarters
Maintenance Platoon
Two Packing Platoons
Supply Section

The Division Parachute Maintenance Officer's Section supervises and coordinates the parachute supply, maintenance, and packing activities of the parachute riggers. It is headed by a major who is the division parachute maintenance officer (DPMO). He also assists the division quartermaster. As a special staff officer he supervises the PM Company activities in the same way that the division

signal officer exercises control of the signal company. He is not concerned with company administration.



Chart—Organization, Airborne Quartermaster Parachute Maintenance Company.

The Company Headquarters Group is responsible for company administration. The company commander is responsible to the division parachute maintenance officer for the administration, discipline, training, and supply of the company. The company commander keeps himself abreast of the operations of his platoons and sections and is prepared to assume the duties of the DPMO when the occasion demands.

The Supply Section of the company (usually called Air Force Supply) is not to be confused with company supply. The missions of the two are completely separate. Company supply is concerned only with the personal needs of the company—clothing, personal equipment, bedding and so forth—while the supply section requisitions, stores, and is-

sues all Air Force equipment used by the airborne division, such as personnel and cargo parachutes, aerial delivery containers, drill presses, grinders, fabric cutting machines, and other Air Force property.

The supply section is headed by the supply officer, a captain, who is commonly called the Air Force Supply Officer simply because his supplies originate with the Air Force. He is under the direct control of the division parachute maintenance officer.

The Maintenance Platoon maintains and repairs all parachutes and allied equipment used by the airborne division. The maintenance officer, a lieutenant, assisted by a warrant officer, directs the operations of the platoon. Operational instructions are received direct from the division parachute maintenance officer. During prolonged noncombat periods and during limited periods of combat the Maintenance Platoon is reduced to four maintenance sections. (See Chart.)

The Packing Platoons, two in number, pack, fit, adjust, and store operational parachutes and assist the supply section in issuing live (packed) parachutes, and in receiving used (open) parachutes. The packing officer, a lieutenant, directs the operations of the packing platoons and receives his orders direct from the division parachute maintenance officer.

RELATIONSHIP TO OTHER AIRBORNE UNITS

The importance of the Parachute Maintenance Company is apparent when any airborne operation is scheduled. Each division unit is dependent on the riggers. Requests are submitted for personnel and cargo parachutes and the containers to hold the equipment that will be secured to the parachutes and paratroopers. Plans are made to supply the airborne units on the ground by parachute until an airhead can be established.

When an airborne combat unit makes a drop, the infantryman is loaded with as many items as he can carry. The rest of his equipment (heavy crew-served weapons, ammunition, and medical supplies) is delivered by cargo parachute.

The artilleryman, for example, sees the huge bundles containing artillery and ammunition floating down to the drop zone (DZ), and he immediately looks for the specific colored parachute that indicates what type of equipment is in each bundle. (Gliders are also used for personnel, vehicles, and heavy or cumbersome equipment.)

RELATIONSHIP WITH THE AIR FORCE

At present the Air Force is responsible for supplying the Army with parachutes and parachute equipment. The Air Force furnishes pilots, airplanes, and gliders for airborne operations. Air Force fighter planes provide the protective umbrella that is a "must" over any sky train or air armada.

Air Force Technical Orders are the bible of the parachute rigger. These technical orders are comparable to the Army's technical manuals and govern the rigger's every action during his working day. Failure to correctly tie a simple but special knot on the "break cord" can very easily be fatal to one or more paratroopers; could, in fact, jeopardize the unit's success through loss of key men.

OTHER DUTIES

During training in the ZI, riggers are kept busy with normal duties, but when an airborne operation is imminent their duties increase correspondingly.

Before and during the marshaling phase, riggers are included in other division advance details. Equipment is prepared by packing, crating, loading and shipping according to current directives and SOP. Riggers may be attached to division units (usually the service companies or batteries) at departure airfields. They are available for inspection, adjustment, minor maintenance, replacement of parachutes, equipment containers, and allied equipment. (Riggers are always prepared to make emergency issues.)

The riggers are also available for technical advice on packing and loading containers for air transport. They can assist in aerial resupply missions—the dropping of rations, ammunition, and medical supplies. During combat the base camp of a PM Company is usually in the com-

munications zone, or farther back, since its work is best accomplished inside buildings. After an airborne operation, a forward element of the PM Company may be called upon to recover and ship parachutes and allied equipment back to the base camp.

SCHOOLING

The Airborne Department of The Infantry School conducts a six-week Parachute Rigging and Repair Course designed to give each student a sound foundation of parachute rigger know how. The course is mainly for prospective riggers assigned to airborne divisions. Graduating classes have, however, included officers and men from other branches of the Regular Army, Organized Reserves, and the National Guard. Air Force personnel and guest officer students from other countries have attended.

The instruction is in three phases. In the first and the second weeks students learn the mechanics of sewing machines, including assembly, disassembly, nomenclature, functioning, and the characteristics and adjustment of the light, medium, and heavy sewing machines. The second phase covers such miscellaneous subjects as hand-sewn seams, life preserver vests (Mae Wests), blue prints, and drawings. The student is taught the assembly and disassembly of the parachute harness, attachment of the pack tray and connector links, and repair of the parachute canopy. Included also is construction and repair of aerial delivery containers.

In the final two weeks the student learns parachute packing and allied subjects: parachute inspection and maintenance; knots; nomenclature; functioning; characteristics; packing and adjustment of the T-7 parachute assembly; B-8 and B-10 free type parachutes; cargo parachutes; and triple clusters (three cargo canopies packed and tied together for heavier loads).

During each week of the course there are periods for athletics, drill, and troop information hours. At the end of the course a parachute jump is scheduled for all qualified parachutists on "jump status" who were assigned to the course from an active airborne organization. The in-

specting, packing, adjustment, and fitting of the parachutes for this jump is accomplished during the course of instruction.

For detailed information as to quotas, application, and prerequisites for the Parachute Rigging and Repair Course, refer to the current issue of the Army School Catalog.

Regular Army and Reserve Officers on EAD may make application for the course if special interest or aptitude is shown. Applications of National Guard officers and enlisted men should be submitted in letter form to the Chief, National Guard Bureau, Attention: Military Education Branch. The request is sent through the appropriate State Adjutant General and the Army or Territorial Commander.

Reserve officers and enlisted men apply to the appropriate Senior Army Instructor. Only members of the active reserve are eligible.

Warrant Officers may apply when: (1) the Parachute Rigger Course is appropriate to the field in which they hold a warrant; (2) when the course will further their ability to perform their MOS assignment; (3) when the course will materially aid in qualification for a higher warrant.

Enlisted men on active duty are selected in accordance with SR 615-215-1, SR 615-25-5, and the prerequisites set forth in the current Army School Catalog. Criteria for the selection and eligibility of WAC (Women's Army Corps) is the same as for male personnel.

SUMMARY

Mentioned early in this article was the fact that men assigned to the Airborne Parachute Maintenance Company must be *keenly aware of their responsibilities.* Perhaps nothing further need be added than this, the first commandment of the Rigger's Pledge:

I will keep constantly in mind
that until men grow wings their para-
chutes must be dependable.

Technique of Instruction: Critique

By Captain Marvin J. Berenzweig, Infantry

EDITOR'S NOTE: This is the fifth and last of a series of short articles on the Technique of Instruction. Beginning with the October 1949 issue of this magazine, these articles have covered the Lesson Plan, Personality and the Lecture, Application, and Examination.

Lieutenant Jones shouted to his platoon, "Okay, the exercise is over. . . . assemble over here." Like his platoon, Jones was dirty, tired, and hungry. He was convinced that running a platoon exercise for the first time was no picnic, especially at night.

Wiping away the sweat that trickled from under his steel helmet, he started to talk to his men as the last one closed in.

"Now you know what a platoon has to do in a night attack. It's no snap. . . . you have to know your stuff. Well, we've learned a lot. It's late and we're all tired. Thanks for being on the ball. Pile on the trucks and they'll take you back to barracks. There's hot coffee and doughnuts in the mess hall. . . . Thanks again. You did a good job."

As Jones turned to get into the cab of the lead truck, he heard Captain Ames' voice call out from the darkness: "Say, Jones, how about riding back with me in my jeep?"

"Yes, sir!" Jones hadn't realized that his company commander was around. Quickly he dredged his mind for everything he had said and done that evening, for every move his platoon had made. On the whole, he thought, I—we—did all right. Sure, at the start of the exercise there was a lot of talking before we crossed the LOFD. . . . but this was the platoon's first night exercise. And Private Riley did strike a match to look at his watch. . . . but put it out when the squad leader got on him. . . . No,

on the whole I don't think there's anything to worry about. . . . But I wonder just how long the Old Man has been around. . . .

He was climbing into Captain Ames' jeep now, mentally prepared to parry criticism of the night's work. But Ames greeted him with a request to borrow a cigarette, explaining conversationally that he had left his Durham Bag* at the company commanders' meeting.

"I intended to get here early," Ames began as he started the jeep down the road. "The meeting delayed me. I got here just in time to hear you announce the problem was over. Sorry I didn't see the whole thing, but your closing remarks gave me the impression that your men did a good job."

"They did," agreed Jones, relaxing under Ames' easy informal tone.

"Not bad, this smoke," said Ames after a few puffs. "You know, I'm not used to these ready made cigarettes. . . . Jones, letting your men know they did a good job, and setting up coffee and doughnuts is a fine thing. The men know you're thinking about them."

Jones relaxed even more. Apparently Captain Ames was well pleased with the night's work.

"However," Ames was saying between bumps of the jeep, "I believe we owe our men every possible break. We never know when they'll be called on to fight for keeps. What they *don't* learn in training may be too late to learn later on. You agree?"

Jones nodded his head. What was Ames getting at?

"I've yet to see an exercise perfectly executed by everyone in it," Ames continued. "Lots of errors—the kind that are costly in battle—always creep in. We've got to iron out these wrinkles. We've got to prevent wrong learning—and ultimately wrong doing in combat. . . . Naturally, the men are tired and hungry after they've worked hard. They're not in the mood for a long harangue after the exercise is over. But the point is, Jones the exercise is *not*

*EDITOR'S NOTE: Readers of the April 1950 QUARTERLY will know that the ubiquitous Captain Ames is addicted to roll-your-own smokes.

over until you've told the men what the score is—what they've done right, what they've done wrong, and what they've got to do to make themselves better combat soldiers. I'm talking about a *critique*, Jones."

"I know you are," Jones admitted, dismally recalling his brief, off-hand remarks to the men after the exercise. Trust Captain Ames to catch any flaw in training! But you could also trust him not to make you feel like a fool about it.

They were in sight of the brightly lighted camp now, and Ames continued: "A good critique isn't long or haranguing. It's constructive, brief, and to the point. I think of it as an after action report that the leader owes to his troops; that the sooner the men get it, the better. I believe in letting them see the ground as they hear the action summarized. I believe in clarifying and emphasizing the main points.

"I know you know this, Jones, but let me give it to you the way my first regimental commander gave it to me. He put it this way: 'Lieutenant Ames, the difference between a harangue and a critique is knowing what you're going to tell your men, how you're going to tell them, and then telling them in the fewest possible words.' He told me something I've never forgotten:

'Make clear, concise notes during the exercise.

'Assemble your men promptly after the exercise; get down to the critique immediately.

'Start the critique with a quick, over-all view of the action and its relation to the purpose of the exercise.

'Summarize the good points; enumerate the bad points—don't make the mistake of losing the forest in the trees—don't be picayunish.

'Evaluate the over-all effectiveness of the action, emphasizing the application of combat fundamentals—not specific solutions.

'Point out what has to be done to improve the combat efficiency of the men and the team. And—this is important—don't forget to give them a feeling of accomplishment. Give credit where due.'

"That regimental commander," Ames continued, went on to tell me: 'Of course, it's nice to open your observations to discussion, because a squad leader who heard that he should have gone around the left flank instead of the right usually wants to get off his chest just exactly why he did it. It's only human nature. But remember, if you keep your viewpoint impersonal, fair, clear, and to the point, your attitude can't help but reflect that you're all out for the welfare of your men. You'll have few, if any, volunteer talkers, and you'll be able to critique the average platoon exercise in less than ten minutes—*if* you know what you're doing. No soldier has ever found fault with a critique, but he has with the officer who *mis*-critiques."

The jeep was drawing up in front of the company barracks now, and Ames borrowed another cigarette. "I've never forgotten that old soldier's advice, Jones. You had the right idea tonight—just didn't follow through."

"I admit it," Jones said. He had learned much tonight; learned it without having his self-respect shattered. "I guess I shied away from giving a real critique because I've often been mis-critiqued myself. I see now that all I had to do was take notes—which I didn't—and then, when the action was over, assemble the men on top of the hill they captured. I could have had my trucks move into position to illuminate the problem area with their headlights. The chow truck could have brought the hot coffee out here, and the men wouldn't have had to wait till they got back to camp. They'd have been in a better mood to hear the final score—the hits, runs, and errors. . . . Well, I won't make the same mistake again."

"I know you won't." Captain Ames nodded approvingly. The two officers got out of the jeep and approached the orderly room. Ames paused. "By the way, Jones, don't think that I've been haranguing you. . . ."

"Not at all, sir; not at all. It's been a good critique of a mis-critique, and I appreciate it."

"Well," Ames replied, "as for me, I'm going to appreciate some honest tobacco—I always keep some Durham in my desk."

Small Arms Working Models—Rifle, M1

By Capt Frederick H. Black, Jr., Infantry, and SFC Coats Brown.

This is the second in a series of articles on wooden working models of infantry small arms. The first was concerned with the models used to teach mechanical functioning of the BAR. This article gives constructional details of the model used in teaching the M1 Rifle. (See Figure 1.) Further, it shows you how to use this model in your instruction.

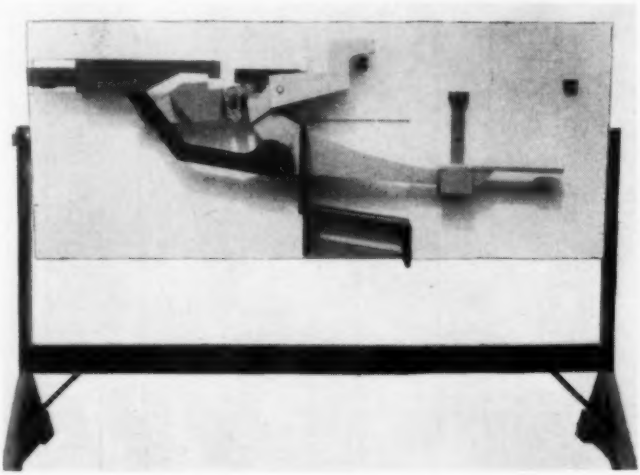


Figure 1. Model used by The Infantry School to teach functioning of the M1 Rifle.

Using the detailed constructional drawings, the photo, and descriptions presented here, any carpenter can construct the model.

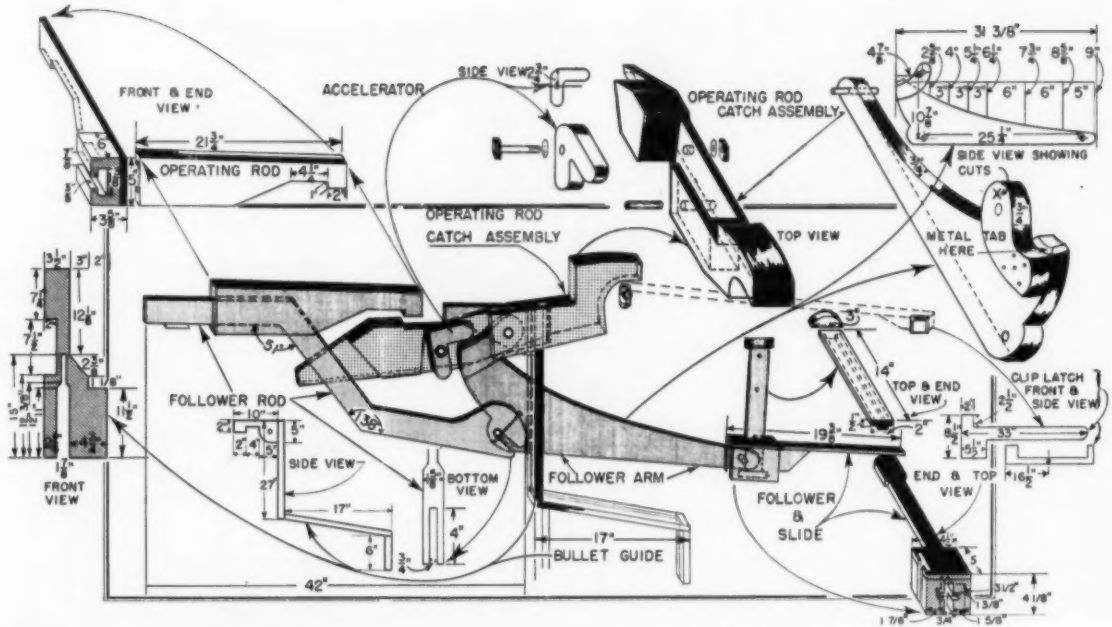


Figure 2. Constructional drawing—parts of the M1 Rifle working model.

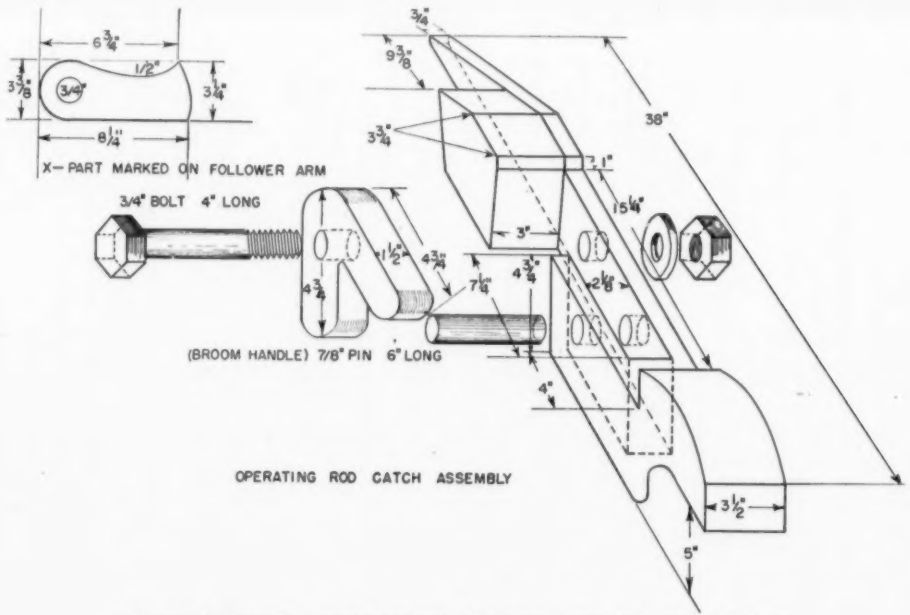


Figure 3. Detailed constructional drawing—operating rod catch assembly for the M-1 Rifle working model.

The following materials are required:

1. For the backboard and moving parts:
   1½ sheets of 4′ x 8′ x ¾″ plywood
2. For the backboard frame:
   24 feet of 2″ x 2″ lumber
3. For the stand:
   3—1″ x 4″ x 8′ (to be nailed together to form a 3″ x 4″ x 8′ crosspiece)
   2—1″ x 4″ x 12″ (braces)
   4—1″ x 4″ x 30″ (braces)
   4—2″ x 2″ x 18″ (braces)
   2—2″ x 4″ x 48″ (vertical posts)
4. For miscellaneous parts:
   ½ sheet of 4′ x 8′ x ½″ plywood
5. 4—2″ coaster rollers (to be mounted on the feet of the stand)
6. 1—coil spring from an auto seat cushion (a piece of this provides the spring action for the clip latch.)
7. 1—4″ x 5/8″ bolt with wing-nut. This holds the accelerator to the operating rod catch assembly. (See Figure 2.)
8. 2—6″ x 5/8″ bolts with wing-nuts. These connect the backboard to the uprights of its stand. (See Figure 1.)
9. 2 feet—½″ dowel rod.
10. 2—3″ flathead wood screws, size 8, for the clip latch. (See Figure 2.) The clip latch pivots on these screws.
11. 1—6″ length of ordinary broom handle.
12. ½-pound—waterproof wood-glue.
13. 1 gross—2″ flathead wood screws.
14. ½-pound of nails.
15. 2—wooden washers made of ¾″ plywood to serve as bearings between the uprights of the stand and the edges of the blackboard.

Start your construction by cutting out the moving parts. Follow closely the dimensions shown in the drawings. Since the moving parts must operate together on the model, there can be little or no deviation from the dimensions shown.

Before assembling these parts, build the backboard and stand. Now, assemble (see below for sequence) and attempt to operate the model. If it functions sluggishly, sand the binding surfaces. Disassemble and paint all moving parts, the stand and the backboard. Any highly contrasting color scheme permitting easy visual differentiation between the moving parts is satisfactory.

Portions of the model which are not visible to the class need not be painted. Avoid painting two surfaces that are in contact during the operation of the model; two painted surfaces coming in contact will cause sluggish operation. Of course those portions visible to the class should be painted regardless of contact. Paint the backboard (background for the model) with either a flat or enamel white paint. Paint the backside black. Paint the stand with black enamel.

The model may be assembled, as soon as all parts are thoroughly dry.

Assemble in this order:

1. Backboard to the stand. The two, six-inch bolts and wooden washers are used to do this.
2. Clip latch to the backboard.
3. Follower assembly to the backboard.
4. Accelerator to the operating rod catch assembly.
5. Operating rod catch assembly and the bullet guide to the backboard. The bullet guide is nailed to the backboard.
6. Follower arm through the bullet guide into the follower assembly. Lock the follower arm and the operating rod catch assembly to the backboard with the six-inch piece of broom handle.
7. Follower rod to the follower arm.

The last step in the construction sequence is to test for smoothness of operation. To test move the follower assembly completely up and down, manually. It may be necessary to apply a small amount of lubricant to some surfaces should the model operate sluggishly.

The M1 model is used in the classroom as well as on the marksmanship preparatory field at The Infantry School.

At The School the four phases of functioning of the barrel and receiver group are taught in a different sequence than that found in present Field Manual 23-5. The manual is being rewritten and the instructional sequence will be changed to agree with the following:

First phase—action upon loading a full clip.

Second phase—forward movement.

Third phase—rearward movement.

Fourth phase—action following the firing of the eighth round.

Remember that some of the actions in each of the above phases take place at the same time.

The wooden working model can be used as a training aid in the first and fourth phases of functioning of the barrel and receiver group.

There are three actions in the first phase. They are:

1. Action of the follower assembly, follower arm, and follower rod.

2. Action of the accelerator and operating rod catch assembly.

3. Action of the clip latch.

As the above three steps are discussed, the following can be illustrated on the model:

1. The square shoulder of the follower arm contacts the accelerator.

2. The accelerator pivots on the toe of the bullet guide.

3. The operating rod catch assembly is cammed away from the barrel.

4. The clip latch rotates and brings the rear stud of the clip latch into the receiver.

The first phase terminates when the rear stud of the clip latch engages the notch on the clip. To demonstrate the above actions on the model, the instructor starts with the follower assembly completely up. He then simulates loading a full clip operating the model manually.

As the simulated clip is partially loaded into the weapon, tell the students to observe the action of:

(1) The follower assembly being depressed.

(2) The follower arm rotating down.

(3) The hump of the follower rod moving away from the 45-degree camming surface of the operating rod catch assembly.

(4) The square shoulder of the follower arm moving to contact the accelerator. The accelerator functions only when a fully charged clip is loaded.

The model is used next in the fourth phase. The four actions in the fourth phase in the correct instructional sequence are:

1. Action of the follower, follower arm, and follower rod.
2. Action of the operating rod catch assembly.
3. Action of the clip latch.
4. Ejection of the clip.

As the fourth phase is discussed point out on the model the following actions:

1. How, as the bolt comes to the rear, the follower assembly moves all the way up in the receiver.
2. How the hump of the follower rod contacts the 45-degree camming surface of the operating rod catch assembly.
3. How the operating rod catch assembly is cammed toward the barrel and its hook engages the hooks of the operating rod. This holds the bolt and operating rod to the rear after the eighth round is fired.
4. How the long rear arm of the operating rod catch assembly moves against the front stud of the clip latch when the operating rod catch assembly is cammed toward the barrel.
5. How the clip latch rotates. During this time its rear stud is withdrawn from the notch in the clip. Under the action of the compressed clip ejector, the expended clip is ejected from the receiver. (This action, of course, is simulated.)

Of great instructional value, this model is fairly simple to make and easy to use.

In subsequent articles detailed drawings, photographs, and constructional details will be presented on models of other small arms used in the infantry regiment.

Wanted: Realism in Weapons Marksmanship Training

By Captain John R. Flynn, Infantry

EDITOR'S NOTE: This controversial article reflects the personal opinion of the writer. It does not reflect the present thought of The Infantry School. The article is published for its thought-provoking content.

Is weapons marksmanship training justified by precedent and necessity, or are thousands of man hours going down the rat hole in an effort to produce an Army with breasts laden with marksman badges?

After pondering this question in view of recent World War II experiences and lessons, and also considering the final objective of all individual and unit training, I am firmly convinced that time devoted to preliminary marksmanship and range firing is misused and abused in tactical units. I believe it would be wise to re-examine our training programs. The individual soldier and the Army would benefit noticeably if this time were reallocated to small unit—squad, section, platoon, company—field firing training.

Don't misunderstand me, I do not mean to belittle marksmanship training, for I believe it is a fine thing. Later I shall discuss its place in training. But considering its present status, I feel that it is weighted too heavily with personal skill and achievement. Teaching a man to fire and qualify with a weapon from stereotyped positions which he seldom, if ever, uses in combat situations does not mean that the man has enhanced his value to his unit. Moreover, the soldier has accomplished this under conditions which offer little or no emotional or mental strain.

Certainly I agree that each man must receive the fundamentals of marksmanship in order to obtain proficiency

and confidence in his weapon, but these fundamentals can be learned during 13 weeks of basic training and then, with an abbreviated course, can be reviewed after the soldier joins his tactical unit. To spend monotonous hours in position exercises, dry run firing, sling adjustment, and triangulation in preparation for record fire is placing the emphasis on the wrong syl-la-ble. This type of training also serves to ingrain habits into each man which are unrealistic and rigid, and this approach does not lend itself to the proper use of a weapon in combat.

With the tremendous forward strides that have been made in camouflage and defensive installations, the soldier in combat rarely, if ever, sees the enemy. Instead, the weapon is used to fire on suspected enemy locations which may be a hedgerow, wooded area, revetment, communication trench, skirmish line, well-camouflaged fox holes, or doorways and windows of buildings—none of which reveal an enemy per se. Again, movement of a flanking squad or platoon may be protected by a base of fire which denies the enemy the use of any firing positions because of the intermittent strike of bullets in the vicinity of these potential firing positions. Proper distribution of fire and employment of other field firing techniques can accomplish this neutralization. And there need not be one qualified weapons man present!

Many instances occured in the last war when a person armed with a rifle or an automatic weapon would delay the advance of a squad, platoon, company, and even a battalion despite the fact that not one casualty resulted from this cleverly placed weapon. The point here is that it does not take a Marksman, Sharpshooter, or Expert to accomplish his mission in the payoff battle whether he is armed with a pistol, rifle, carbine, or automatic weapon.

Give those additional marksmanship training hours to squad leaders, platoon NCO's, and company officers to enable them to perfect team leadership and team firing techniques. They seldom receive sufficient time for transition firing field target firing, and "battle drill" exercises —all of which stress individual and team combat techniques.

If you prefer, require the recruit to take his full quota of hours allotted to weapons training in his basic training course. Make this intensive and thorough in every detail. But after he joins his tactical unit, modify the weapons training to permit maximum time for team type firing. If the commander desires to retain a record course range season, let him slash the mechanical training and preliminary marksmanship to about one third or one fourth of present time allocation. Time modification will vary depending on characteristics of each weapon. All efforts should be made to relieve the monotony, boredom, and apathy which associates itself with the program of mechanical training, PRI, and range firing.

You probably are asking now, "What about the fine tradition of weapons marksmanship in the Army?" Rest easy, please, for I have no intention of forgetting about that fine tradition. We can still retain interest in weapons marksmanship among individuals and units by promoting and supporting individual and team competition. In my high school ROTC unit there were always many young men who aspired enthusiastically to become members of the rifle team. So much so, that they cheerfully practiced many hours after school. Also, as a counsellor at a boys' camp, I observed the eagerness of young lads who delighted in spending hours firing on a miniature rifle range. As a matter of fact, the rifle range seriously rivalled the waterfront activities as the favorite recreation. I see no reason why the appeal for this type of competition should not be as intense for the young soldiers in today's Army.

Let's face it. The time has come when we must admit that every soldier will not qualify as an expert with his weapon, just as every soldier will never learn to swim; every soldier will never become proficient in baseball; every soldier will not pass the PT test; every soldier will not look military in a uniform. Obviously because each individual has been endowed by his Creator with certain limitations and capabilities. But that same soldier, even though he "bolos", can accomplish his mission in the unit when armed with his weapon and working as part of the team. High standards are certainly desirable in any en-

deavor, but I question the purpose and value of high individual marksmanship scores as presently advocated.

Consider this as another reason for making changes: Does a football coach spend as many hours on a seasoned veteran as he does on a newcomer when fundamentals are taught early in the season? I don't think so. Apply that same example to marksmanship training. Why send all soldiers through a complete session in mechanical training, PRI, and range firing when a shorter course will offer them sufficient familiarization in order to proceed to more important phases of training. Allocate those hours to field firing and the soldier will receive a decent balance between theory and application.

A person can't be taught to play baseball by lectures, demonstrations, and practicing sliding, hitting, fielding for 40 hours and then actually play the game for several hours. Perhaps I should say that the person will not be a proficient baseball player under this type of instruction. Similarly, a soldier can't learn to use his weapon *for combat* by receiving about 50 hours instruction without firing a shot and then put him on the range for 5 to 10 hours instruction and record firing and expect him to fire high scores. If he *has* qualified, so what? That's too much time to determine if a man is raising the percentage of experts. A more confident soldier and a more vigorous Army will result if that time were allotted to small unit training.

Recent changes in the transition rifle course outlined in Department of Army Training Circular No. 5 for 1950 indicate that we are aware of the deficiencies in this phase of training. TC No. 5 is definitely a step toward a more practical outlook for combat firing. I have likewise read the QUARTERLY article, THE NEW RIFLE MARKSMANSHIP COURSE*. Again, a step forward.

I think it is worth a trial run. Peacetime is the period for change and experimentation and it would be a simple matter to designate two infantry divisions to conduct tests to evaluate the changes proposed in this article.

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*EDITOR'S NOTE: This article appeared in the October 1949 issue.

Many may think that the proposals are too radical, and they may be right. If so, I shall welcome any rebuttal.*

CONCLUSION

To summarize, I feel that since training time is so precious in this era of atom and hydrogen bombs, we should eliminate from our training programs all subject matter which does not enhance our combat effectiveness. Let's begin with rifle marksmanship by slicing about three quarters of time presently prescribed during the individual phase in AFF Training Program 7-1 and allotting it to small unit team training. Morale, competition, stimulation for officers, NCO's, and soldiers would be the by-products of such a program, and would replace the monotony, boredom, and doubtful value of present weapons marksmanship training.

*A rebuttal to Capt Flynn's comments appears on the next page in the article WANTED: BETTER MARKSMEN by Lt Col M. C. Taylor.

Wanted: Better Marksmen

By Lt Col M. C. Taylor, Infantry

EDITOR'S NOTE: This article represents the doctrine of The Infantry School and is a contrasting approach to the views expressed in WANTED: REALISM IN WEAPONS MARKSMANSHIP TRAINING published in this issue.

Having read the article entitled WANTED: REALISM IN WEAPONS MARKSMANSHIP TRAINING, I am reminded vividly of a thought expressed by a prominent speaker who recently addressed Fort Benning officers. The thought was expressed something like this: "Is the direction of our country toward 'mass and mediocrity' or toward quality? We can't have both—we just can't have both. I would say we cannot beat an enemy with mass; we can only beat him with quality."

As I see it—as The Infantry School sees it— the article WANTED: REALISM IN WEAPONS MARKSMANSHIP TRAINING advocates mass and mediocrity. Its author objects to the amount of time allotted in our training program to individual rifle marksmanship. He believes that accuracy of the individual rifleman is unimportant and unnecessary. He believes that the bulk of the time and stress should be given to unit firing— that is, teaching a group (squad, platoon) of riflemen how to place their fire in a particular area where the enemy is known or thought to be located.

To me, and to The Infantry School, such a doctrine violates the very premise on which all teaching is built. A child is taught to write each letter before learning to spell and it must learn to spell before it is taught sentence structure. A radio operator must learn the code and how to send and receive before he can operate in a net. How successful is a basketball team that has good teamwork

but cannot hit the basket? I think it was in 1939 that Mr. Walter Walsh of the FBI shot it out, on the streets of Bangor, Maine, with the notorious Brady Gang— one man, an expert with his pistol, versus an entire gang armed to the teeth. The result: Walsh is very much alive today, a Lieutenant Colonel in the U. S. Marines. The Brady Gang no longer exists. Quality versus mass and mediocrity.

In this rebuttal to Captain Flynn's article, I am assuming that the reader is generally familiar with the current directives dealing with rifle marksmanship instruction. However, to make my point and to assist the reader in evaluating the point, I shall paraphase briefly some of these directives:

> ATP 21-1, Department of the Army, dated 6 April 1949, outlines the Basic Military Training Program (14 weeks) for *newly enlisted men who receive their initial* (recruit) *training in Training Divisions* and are then permanently assigned to other divisions where they receive their unit training.
>
> So far as rifle marksmanship is concerned, the individual basic training outlined in AFF TP-7-1, MTP 7-1, the 42-week cycle of TM No. 1, and ATP 21-1, are for the most part, identical—approximately *82* hours being alloted to train the recruit how to care for and shoot his rifle. Sixty-four additional hours are allotted to unit or field firing instruction.
>
> The second 42-week cycle outlined in TM No. 1 is called the "Post 42 Week Cycle" and applies to units which have completed the initial 42-week cycle. No *exact* number of hours is prescribed for rifle marksmanship in this second cycle. The amount to be used is left to the decision of army or division commanders. Similarly, the nature and extent of the preparatory instruction to be given these men before going on the range is *largely left to the judgment of unit commanders.*

With this information in mind, let us return to Captain Flynn's arguments. He describes as "going down the rathole" the hours spent on repetition of preparatory marksmanship instruction for men who have fired their rifles in previous years. Certainly some of this instruction—such as triangulation—can be considerably reduced for certain individuals *if* the commander knows his men; but I can tell you this from my experience in instructing thousands—yes, thousands—of officers, officer candidates and NCO's in rifle marksmanship: I have never found a man who either did not need or did not measurably profit by his instruction in position exercises, trigger squeeze exercises, and so forth.

Let me again quote from Captain Flynn's article: "I am firmly convinced that time devoted to preliminary marksmanship and range firing is misused and abused in tactical units. I believe it would be wise to re-examine our training programs. The individual soldier and the Army would benefit noticeably if this time were reallocated to small unit—squad, section, platoon, company— field firing training."

To illustrate that Captain Flynn's article is confusing and inconsistent, I again quote him:

"I certainly agree that each man must receive the fundamentals of marksmanship in order to obtain proficiency and confidence in his weapon, but *these fundamentals can be learned during the 13 weeks of basic training* and then, with an abbreviated course, can be reviewed after the soldier joins his tactical unit. . . . If you prefer, require the recruit to take his *full quota of hours allotted to weapons training in his basic training course. Make this intensive and thorough in every detail.*"

Yet, in his conclusion Flynn states: "To summarize, I feel that since training time is so precious in this era of atomic and hydrogen bombs, we should eliminate from our training programs all subject matter which does not enhance our combat effectiveness. *Let's begin with rifle marksmanship by slicing off about three quarters of the time presently prescribed during the individual phase of AFF TP 7-1* and allotting it to small unit team training."

Just to keep the reader and myself straight, I'd better quote AFF TP 7-1 again. Paragraph 1, first page of that TP states:

> *Purpose.* To provide a master program for use as a general guide for the *basic individual training* of *newly* formed infantry units.

This includes the 13 (actually 14) weeks of basic training. How can you give the recruit the "fundamentals of marksmanship in order to obtain proficiency and confidence in his weapon" and give him "his full quota of hours allotted to weapons training in his basic course and make it intensive and thorough in every detail"—yet slice

off three quarters of the 82 hours allotted to rifle marksmanship in AFF TP 7-1?

Shades of Kameil Maertens!* How could anyone get through a course in rifle marksmanship to obtain proficiency and confidence in his weapon in 20 hours! Mind you, that 20 hours would include nomenclature, assembly and disassembly, functioning, stoppages, immediate action, care and cleaning, safety precautions, position, trigger squeeze, sight setting, effect of wind, use of the scorebook, known distance firing, transition firing, and should include field target firing—all of which is basic training and is necessary before the recruit advances to unit firing.

Surely, Captain Flynn cannot actually believe that in either peace or war (I am not sure, since he didn't say so, whether his article is aimed at peace time or war time training) 20 hours is all that is needed in the soldier's entire career to teach him the fundamentals of marksmanship.

But let us approach Flynn's theory from another angle. Actually he is one of a surprisingly large group which, since the past war, holds to the theory that individual accuracy—that is, single-shot accuracy—is unimportant and that individual or unit *volume* of fire is the only answer. Some members of this school of thought even advocate doing away with teaching the fundamentals of marksmanship—just show the soldier how to load the rifle and where the trigger is located. They contend that the natural inability of the firer to hit any particular point target will result in better distribution of unit fire. They say that the expert will put all his shots in a very small space and consequently the unit will not achieve proper distribution of fire over the entire target area. At one time the French are supposed to have held somewhat to this theory, but frankly I have never heard of an example where this theory made history. I have read somewhere a German account of the devastating accuracy of U. S. rifle fire when

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*EDITOR'S NOTE: Maertens, an almost legendary ex-rifle instructor at The Infantry School, lived and breathed the rifle. He was a Distinguished Marksman and oft-time coach of the Army Rifle Team.

they first encountered the Marines in World War I. . . . And in this connection one can quote history, *ad infinitum*, to show examples of the efficacy of aimed, accurate rifle fire. A brief mention of the Finns is enough—their small army of well-trained marksmen stopped Russia not so long ago.

The case for accurate rifle fire could be expanded into volume length. One could show an infinity of examples where it has paid off—thus showing that the Army's current concept of rifle marksmanship training is sound. However, I am concluding this rebuttal with just two thoughts for the reader to keep in mind. Colonel S. L. A. Marshall, in his "Men Against Fire," states that all too frequently only 15 to 25 per cent of our riflemen in front line combat units fired their rifles. Why? In essence, they were afraid they'd draw enemy fire if they fired but did not kill the enemy, and they usually lacked confidence in their ability to hit a target when they saw one.

The answer to a condition like that is: Proper fundamental marksmanship training to teach the soldier how to hit what he wants to shoot at. Give him confidence in his ability to do that and he will *want to shoot*.

In conclusion, there are 18,804 men in an Infantry Division. Nineteen hundred and forty-four (1,944) men are riflemen. The remaining 16,860 men in the division are there for the sole purpose of helping those riflemen to capture and hold the objective. Just recently at Fort Benning a veteran division commander stated, in effect, that those 1,944 riflemen should each be expert with his weapon. You wouldn't use a second-rate rifle, would you? Then who wants a second-rate rifleman?

Mediocrity has no merit.

8000 Students by Mail

By Capt George R. Adjemian, Infantry

There are various reasons why many officers are unable to attend resident instruction at The Infantry School. Yet as ambitious officers they want to keep their military education up-to-date.

If that is your problem, the answer to it is in the Extension Course of The Infantry School. The Course is available to any military student within reach of United States Mail.

The purpose of the extension course system is to provide a non-resident course—by mail—that parallels the resident instruction of The Infantry School. The course helps you acquire proficiency in the duties of your present grade and prepares you for promotion to the next higher grade.

Except for common subcourses prepared by other schools, most of the subject material is prepared by Infantry School instructors—the same instructors who teach resident students. The references used are the same up-to-date manuals and special texts studied by resident students. The 8000 students now taking the Extension Course get *parallel* instruction, in the true meaning of the word.

The Infantry School's Extension Course is divided into five numbered series, corresponding to the five grades from second lieutenant to lieutenant colonel. Each series consists of a number of subcourses, with each subcourse devoted to a single subject. Each subcourse, in turn, has three to nine lessons with an examination or review.

The instruction is progressive with the grade of the student. As a lieutenant, for example, you study weapons, small unit tactics, and basic administration. As a captain, you study more advanced tactics to include artillery, engineers, tanks, and other associated arms. Upon reaching

field grade you study battalion and regimental operations. (The subcourses administered are listed in the appendix of this article.)

The general subdivision of the course into series is:

Series	*Grade of Student*	*Credit Hours*	
		Min.	*Max.*
20	2d Lt	150	180
30	1st Lt	230	250
40	Capt	370	400
50	Major	230	250
60	Lt Col	310	330

The course is organized for the average officer. Actually each student presents an individual case. Generally he enrolls in a series appropriate to his grade but may take only those subjects he needs and which are approved for his study by his unit instructor or commanding officer. A student may be exempted from subcourses in which he is already qualified by virtue of resident instruction taken at a service school.

Enlisted men and warrant officers are eligible to enroll in the 10-series to qualify themselves for commissioned rank. The 10-series is administered by the Army General School, Fort Riley, Kansas, for members of the combat arms, and by the respective service school for members of the service.

In the appendix of this article you will note that some subcourses are designated as "optional." Though not mandatory, these subcourses have considerable instructional value and students who have the time are urged to complete them to round out their military education.

BENEFITS

Study of extension courses will not only increase your military knowledge but, at the same time, will qualify you educationally for other benefits. Briefly, these are as follows:*

*For complete details on these subjects, see:
SR 140-180-25, D/A, 1949
SR 140-155-1, D/A, 1950
NGR 23, 1949
NGR 20, 1947, as amended.

Enlisted men and warrant officers of the active reserve and National Guard who are otherwise qualified may be granted commissions upon completing the 10 series. This series is administered by the Ground General School at Fort Riley, Kansas.

Officers of the active reserve and National Guard may qualify for promotion by completing appropriate extension courses of their branch schools. These officers may qualify for promotion up to and including the grade of colonel (except colonel of a combatant arm).

By completing appropriate extension courses National Guard officers may retire waiver requirements to gain Federal recognition.

All members of the active and National Guard may be awarded retirement point credits for completing extension courses. Such credits are awarded at the rate of one for each three credit hours of appropriate extension course work successfully completed.

ENROLLMENT

Complete enrollment details are contained in AR 350-300 and SR 350-300-1, both dated 1 July 1949. These regulations are available at the headquarters of any Reserve or National Guard unit. For your convenience the information is condensed below:

The following may enroll in the Infantry School Extension Course:

1. Any Infantry officer of any component of the United States Army.

2. Any officer of any other branch who has successfully completed the appropriate extension course series of his own branch school, or is otherwise qualified.

3. Any warrant officer or enlisted man who enrolls for selected courses which might provide assistance in the performance of his duties or prospective duties.

4. Civilians on duty with the Armed forces and officers of other branches of the Armed Forces (Air Force, Navy) under special conditions.

Applications are made on WD AGO Form 145 as follows:

1. If you are a member of a regularly organized unit of any component, make your application through channels, in quadruplicate, to the regimental or similar unit commander. Your application if approved will be forwarded direct to The Infantry School.

2. If you are a member of the Reserve Corps not assigned to a regularly organized unit, make your application direct to your regular army instructor. He will forward it to The Infantry School.

APPENDIX OF SUBCOURSES

EXTRACT OF SECTION XI "EXTENSION COURSE OF THE INFANTRY SCHOOL" OF ANNUAL ANNOUNCEMENT OF ARMY EXTENSION COURSE 1949-50, 1950-1951, DA PAMPHLET 20-100

Subcourse	Title	No. of Lessons	Credit Hours
20-1	Transferred to 30-Series as 30-21)		
20-2	Methods of Instruction (Optional)	6 Les & Ex	14
20-3	Military Law-Courts Martial	7 Les & Ex	30
20-4	Crew-Served Infantry Weapons not Self-Propelled	9 Les & Ex	20
20-5	Tanks in the Infantry Regiment (Optional)	7 Les & Ex	18
20-6	Hasty Field Fortifications and Obstacles	5 Les & Ex	18
20-7	Mess Management (Optional)	7 Les & Ex	18
20-8	Intelligence and Reconnaissance Platoon Infantry Regiment (Optional)	4 Les & Rev	12
20-9	Combat Intelligence II (Optional)	9 Les & Ex	20
20-10	Motor Vehicle Operation and Maintenance (Optional)	8 Les & Ex	20
20-11	(Deleted)		
20-12	Troop Movement and Bivouac-I (Optional)	5 Les & Ex	12

Sub-course	*Title*	*No of Lessons*	*Credit Hours*
20-13	Communication in the Infantry Company	6 Les & Ex	16
20-14	Platoons of the Infantry Regiment in Defense	6 Les & Rev	21
20-15	Rifle and Weapons Platoons in Attack	8 Les & Rev	24
20-16	Platoons of the Heavy Weapons and Heavy Mortar Companies in the Attack	7 Les & Rev	17
20-17	The Tank Platoon, Infantry Regiment in Attack	6 Les & Rev	14
20-18	Combat Supply and Evacuation of the Infantry Company	7 Les & Ex	16
20-19	Air Navigation (Required for Pilots Only)	8 Les & Ex	19
30-1	Administration-II	9 Les & Ex	23
30-2	(Transferred to 40-series as 40-21)		
30-3	Terrain Evaluation-I	5 Les & Ex	12
30-4	(Transferred to 40-series as 40-22)		
30-5	Estimate of the Situation and Combat Orders—II	8 Les & Ex	18
30-6	Meteorology for Light Aviation (Required for Pilots only)	8 Les & Ex	20
30-7	Communication in the Infantry Battalion	8 Les & Ex	20
30-8	Troop Movement and Bivouac-II	7 Les & Ex	16
30-9	Reconnaissance and Security	5 Les & Ex	13
30-10	Rifle Company in Defense	9 Les & Rev	27
30-11	Heavy Weapons, Tank, and Heavy Mortar Companies in Defense	6 Les & Ex	21
30-12	Rifle Company in Attack	8 Les & Rev	23
30-13	Combat of an Infantry Rifle Company Under Special Terrain Conditions (Optional)	6 Les & Rev	18

Sub-courses	*Title*	*No of Lessons*	*Credit Hours*
30-14	Heavy Weapons, Tank, and Heavy Mortar Companies in the Attack	7 Les & Rev	24
30-15	(Transferred to 40-series as 40-23)		
30-16	Combat Supply and Evacuation of the Infantry Battalion	6 Les & Ex	14
30-17	Combat Supply, Evacuation, and Maintenance of the Armored Infantry Battalion (Optional)	3 Les & Ex	9
30-18	Troop Information and Education-I (Optional)	3 Les & Ex	8
30-19	Special Services Officer (Optional)	To be announced	
30-20	Duties of the Exchange Officer (Optional)	To be announced	
30-21	Map and Aerial Photograph Reading-II	9 Les & Ex	20
30-22	Leadership-I	To be announced	12
40-1	Map and Aerial Photograph Reading-III	7 Les & Ex	16
40-2	Rules of Land Warfare	7 Les Ex	16
40-3	Military Government	6 Les & Ex	20
40-4	Employment of Light Aviation (Ground Units)	7 Les & Ex	16
40-5	Traffic Control, Reconnaissance, and Planning	3 Les & Ex	15
40-6	Combat Intelligence-III	9 Les & Ex	20
40-7	Troop Movement and Bivouac-III	8 Les & Ex	25
40-8	Staff Functions and Procedures	9 Les & Ex	20
40-9	Counterfire Organizations and Techniques	4 Les & Ex	11
40-10	Joint Air-Ground Operations	4 Les & Rev	10
40-11	Field Artillery in Support of Infantry	4 Les & Rev	10

Sub-courses	*Title*	*No of Lessons*	*Credit Hours*
40-12	Employment of the Infantry Division Tank Battalion	4 Les & Rev	12
40-13	Tactics and Techniques of Engineers	5 Les & Ex	15
40-14	Infantry Battalion in Defense	7 Les & Rev	24
40-15	Infantry Battalion in Attack	7 Les & Rev	24
40-16	Communication in an Infantry Regiment	7 Les & Ex	20
40-17	Combat Supply and Evacuation of the Infantry Regiment	6 Les & Ex	14
40-18	Communication Responsibilities of Commanders and Staff Officers (Optional)	3 Les & Ex	12
40-19	Military Boards and Investigations	7 Les & Ex	21
40-20	Information and Education-II (Optional)	3 Les & Ex	8
40-21	Training Management	5 Les & Ex	12
40-22	Preparation of a Field Exercise	5 Les & Rev	12
40-23	Airborne Troops	9 Les & Ex	28
40-24	Terrain Evaluation-II	5 Les & Ex	12
40-25	Leadership-II	To be announced	12
50-1	Transferred to 40-series as 40-24		
50-2	Infantry Battalion and Regiment in Defensive Combat	7 Les & Rev	20
50-3	Reinforced Infantry Battalion in Attack-I	8 Les & Rev	23
50-4	Reinforced Infantry Battalion in Attack-II	7 Les & Rev	23
50-5	Reinforced Infantry Battalion in Jungle and Mountain Operations (Optional)	8 Les & Rev	22

Subcourse	*Title*	*No of Lessons*	*Credit Hours*
50-6	Infantry Battalion in Retrograde Movements	5 Les & Rev	14

NOTE: When the student has completed those subcourses listed above, which are currently available, the school will transfer him to the command and General Staff College where he will pursue Subcourses 50-7 thru 50-14.

50-7	COMMAND AND STAFF FUNCTIONS—DIVISION—(C&GSC Subcourse No. 1)		
50-8	TACTICAL PRINCIPLES AND CONTROL METHODS—DIVISION (C&GSC Subcourse No. 2)		
50-9	SPECIAL STAFF SECTIONS—DIVISION (C&GSC Subcourse No. 3)		
50-10	PERSONNEL SECTION—DIVISION (C&GSC Subcourse No. 4)		
50-11	INTELLIGENCE SECTION—DIVISION (C&GSC Subcourse No. 5)		
50-12	OPERATIONS SECTION—DIVISION (C&GSC Subcourse No. 6)		
50-13	LOGISTICS SECTION—DIVISION (C&GSC Subcourse No. 7)		
50-14	STAFF COOPERATION AND COORDINATION—DIVISION (C&GSC Subcourse No. 8)		
60-1	(Deleted)		
60-2	Development and Security of an Infantry Regiment in Defensive Combat	6 Les & Rev	16
60-3	Infantry Regiment in Defense	7 Les & Rev	23
60-4	Infantry Regiment in Attack	9 Les & Rev	30
60-5	Reinforced Infantry Regiment in Offensive Combat	6 Les & Rev	20
60-6	To be announced	To be announced	

NOTE: When the student has completed those subcourses listed above, which are currently available, the school will transfer him to the Command and General Staff College, where he will pursue subcourses 60-7 thru 60-15.

Sub-Course	*Titles*	*No of Lessons*	*Credit Hours*
60-7	PRINCIPLES OF MILITARY LEADERSHIP (C&GSC Subcourse No. 11)		
60-8	TACTICAL PRINCIPLES AND DECISIONS — I (C&GSC Subcourse No. 12)		
60-9	TACTICAL PRINCIPLES AND DECISIONS — II (C&GSC Subcourse No. 13)		
60-10	TACTICAL PRINCIPLES AND DECISIONS — III (C&GSC Subcourse No. 14)		
60-11	TACTICAL PRINCIPLES AND DECISIONS — IV (C&GSC Subcourse No. 16)		
60-13	TROOP LEADING, COMMAND, STAFF, AND LOGISTICS (C&GSC Subcourse No. 17)		
60-14	THE ARMY INFORMATION PROGRAM, PUBLIC INFORMATION AND TROOP INFORMATION AND EDUCATION (C&GSC Subcourse No. 18)		
60-15	THE ARMY AREA (C&GSC Subcourse No. 41)		

Technique of Marching: Watch Those Feet*

*EDITOR'S NOTE: This is the third of a series of short articles on the Technique of Marching. The first, MORALE ON THE MARCH, appeared in the October, 1949, issue; the second, RATE ON THE MARCH, in the January, 1950, issue.

Napoleon said that an army marches on its stomach. Everyone knows this figure of speech means that men can't march without food.

The literal truth, though, is that the infantry of an army often marches on its feet. This statement will not surprise infantrymen. Neither will the fact that their feet bear the brunt of the marching effort. They can attest the truth of this by personal experience with the various aches and pains that have bedeviled their feet in the past.

The human foot is a delicate thing. It has small bones, a network of tiny blood vessels, tendons, ligaments, nerves, and muscles. Compared to the structure of the leg and back, it is the weakest part of your body when you are marching.

Yet you must depend on those vulnerable feet of yours to get you where you are going. If they quit on you, the straggler column gets a new recruit.

So, *watch those feet!*

Here are some of the things to watch out for as a commander:

You are responsible for the type of shoe issued to and worn by your men. You are mainly interested in the *fit* of those shoes. Here's how to get it right:

Have the man stand with his weight evenly distributed on both feet. See that he wears the socks to be worn with the shoes, and that he laces the shoes. There are four tests for proper fitting. (See Figure 1.)

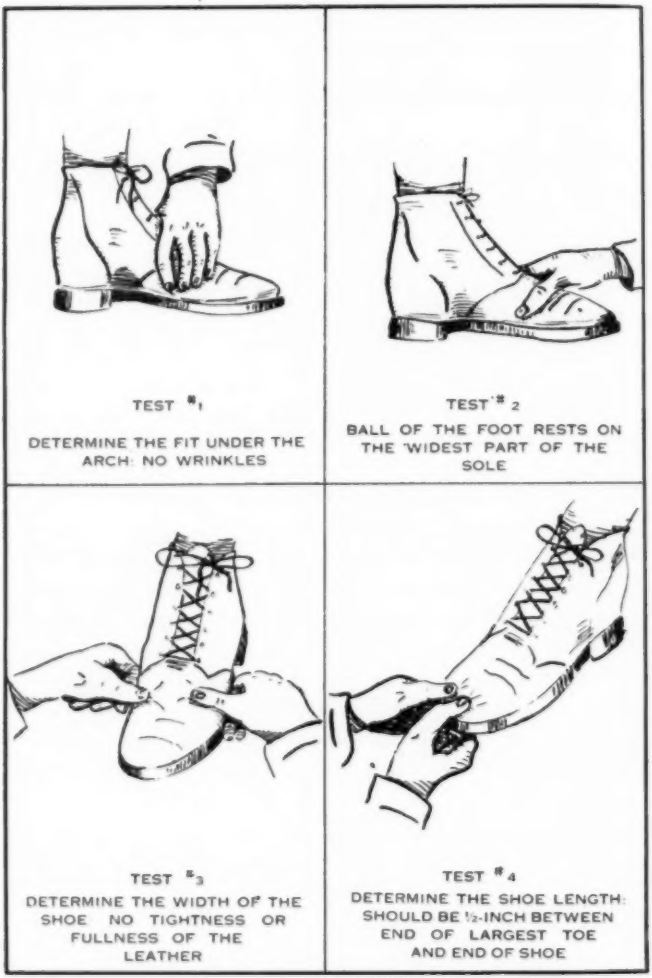
TEST #1
DETERMINE THE FIT UNDER THE ARCH: NO WRINKLES
TEST #2
BALL OF THE FOOT RESTS ON THE WIDEST PART OF THE SOLE
TEST #3
DETERMINE THE WIDTH OF THE SHOE NO TIGHTNESS OR FULLNESS OF THE LEATHER
TEST #4
DETERMINE THE SHOE LENGTH: SHOULD BE ½-INCH BETWEEN END OF LARGEST TOE AND END OF SHOE

Figure 1.

Test #1

You determine the fit under the arch by grasping the shoe over the instep with the thumb on the outer side and the fingers on the inner side. The leather should be free of wrinkles.

Test #2

Check that the ball of the foot rests on the widest part of the sole.

Test #3

You find the width of the shoe in relation to the foot by pressing the thumbs against the outer and inner sides near the sole. There should be no tightness or fullness of the leather.

Test #4

The shoe length is determined by pressing down on the shoe with both thumbs at the toe. There should be one-half inch between the end of the longest toe and the end of the shoe. If the shoe has a hard toe that cannot be depressed, you can estimate the length of the foot by Test #2 and #3. (The use of foot measuring devices is covered in TM 10-288).

Proper shoe fitting is important because shoes that do not fit cause most of the common foot complaints— blisters, sores, and abrasions. A commander can prevent this situation by demanding that his men get properly fitted. Of course, demanding will not always be enough; he may have to *see to it himself*. It is time well spent.

Time well spent also is that given to *foot inspections*, for even though your men may be properly shod, there are other ailments which attack the feet that have nothing to do with the fit of the shoe. The most common of these is "athletes foot," a fungus infection which, if allowed to spread, is very filthy and painful. Although it is easily prevented by cleanliness of the feet, socks, and shoes, plus liberal use of foot powder, there are always a few men who realize this too late. They are your march casualties, and it is as much your fault as theirs when you don't pre-

vent it by inspection. A good ground rule for foot inspections is this: "Don't talk about them; insist on them."

Another serious foot condition is trench foot. There were a lot of casualties from trench foot in the last war. In some cases these casualties were unavoidable, but in many cases they could have been reduced or stopped altogether by supervised care of the feet.

Trench foot is caused by long exposure to cold and wet when the soldier stands or crouches in his foxhole, unable to move about. It doesn't occur during a march, but may set in, when conditions are right for it, during periods of inactivity *after* the march. It is aggravated by tight clothing around the legs and tight shoes, because this condition prevents full circulation of blood to the feet. By keeping the feet, shoes, and socks as dry as possible, and by exercising and massaging the feet, trench foot can often be prevented. It is up to the commander to insist on these precautions.

"Well," you may say at this point, "this is the third or fourth time this article has said it is all up to the commander. Hells bells! It seems as though a man would take care of his own feet!"

The literal truth is, though, that God helps those who help themselves; and those who don't — yes, you guessed it. *It's up to the commander.*

Wear 'Em Right!

By Maj David E. Milotta, Infantry

Should my captain's bars be parallel to the front edge of my shirt collar, or the bottom edge? Does that Distinguished Unit Badge go on my left breast, or the right? Can I wear my parachute badge on my blouse pocket flap or does it go above the pocket?

Most of these questions are answered in AR's but some of the regulations are subject to varied interpretations.

This short pictorial article straightens out the troublesome problem of how to wear your insignia, badges, and ribbons. Here's what The Infantry School has dug up on the subject to help you "Wear 'Em Right."

Service ribbons are worn in lieu of decorations and/or service medals, and only those representing corresponding authorized decorations and/or service medals are worn. They are worn on the service coat, winter jacket, or shirt, (never the field jacket or fatigue clothing) immediately above the pocket of the left breast from right to left in the same order of precedence as prescribed for decorations and/or service medals. Order of precedence is as follows:

1. Medal of Honor
2. Distinguished-Service Cross
3. Distinguished-Service Medal
4. Silver Star
5. Legion of Merit
6. Distinguished-Flying Cross
7. Soldier's Medal
8. Bronze Star Medal
9. Air Medal
10. Commendation Ribbon
11. Purple Heart (lowest ranking decoration)
12. Good Conduct Medal (highest ranking service medal)
13. Remaining service medals in the order of the *date of the service performed; not date of authorization.*

Thus the American Defense Service Medal precedes the campaign medals, and the campaign medals are followed by the World War II Victory Medal and the Army of Occupation Medal, in that order. The Army of Occupation Medal service ribbon is worn with the black on the wearer's right, regardless of where the occupation duty was performed. In the order of precedence, decorations of friendly foreign nations follow that of United States service medals. At least one United States service ribbon must be worn at the same time a foreign service ribbon is worn.

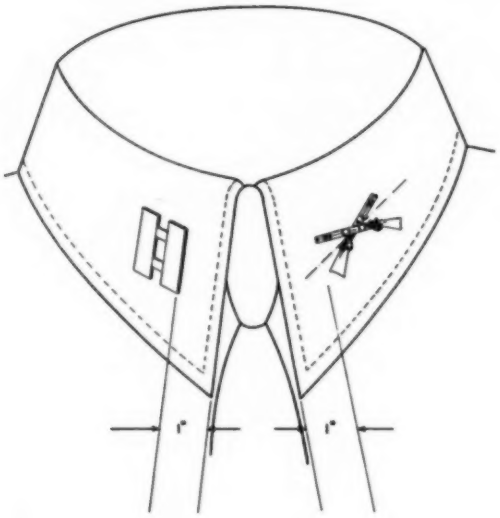

Figure 1. Officers' insignia on collar of shirt. Insignia is equidistant from top and bottom edges of collar. Vertical axis of insignia of rank is parallel to front edge of collar. Broken line running thru main axis of crossed rifles is parallel to bottom edge of shirt collar. Location of broken line is omitted in regulations but is prescribed by The Infantry School. General officers are the only Army personnel authorized to wear miniature insignia of rank.

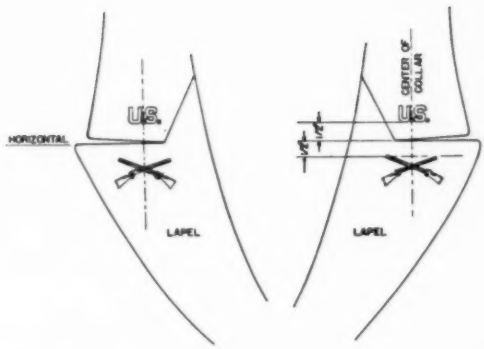

Figure 2. Officers' insignia on the winter or summer coat, commonly called the blouse. See Figure 3 for insignia on the winter jacket, commonly called the battle jacket. The broken line running thru "US" and crossed rifles is a vertical line.

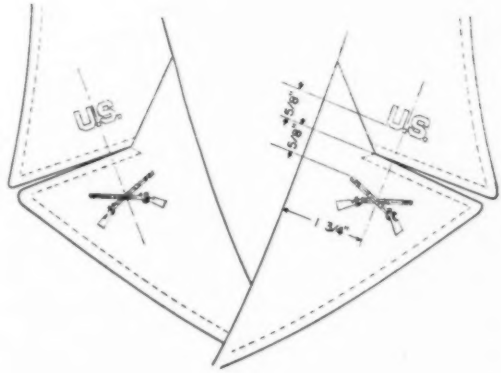

Figure 3. Officers' insignia on jacket, winter, not coat. See Figure 2. The Infantry School prescribes that broken line running thru "US" and crossed rifles be parallel to inner edge of lapel.

Figure 4. Enlisted Men's insignia on collar of shirt. Insignia is equidistant from top and bottom edges of collars. The Infantry School prescribes that vertical axis of "US" be parallel to front edge of collar, similar to position of insignia of rank prescribed for officers. Crossed rifles are worn in same relative manner as officers'. See Figure 1.

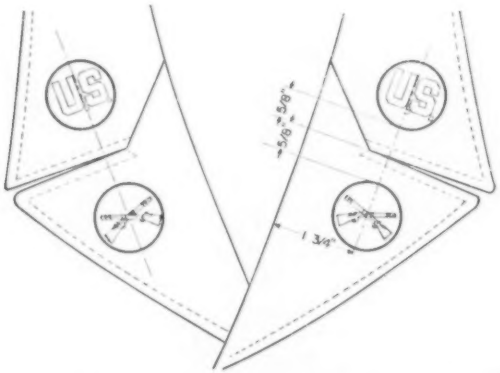

Figure 5. Enlisted Men's insignia on jacket, winter. Position of "US" and crossed rifles is similar to that of officers'. See Figure 3.

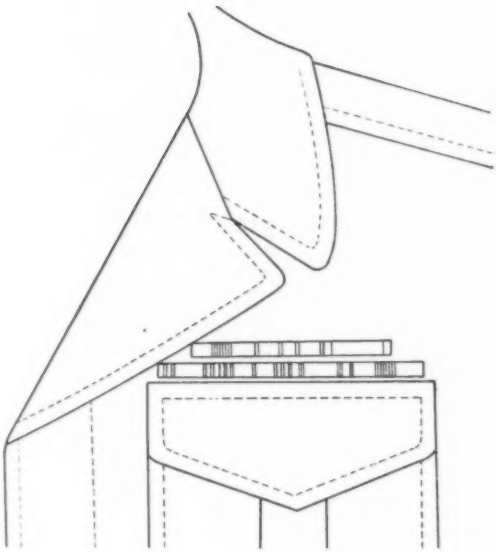

Figure 6. Wearing of service ribbons. Length* (vertical measurement) is ⅜ inch. Distance between lines is ⅛ inch. Service ribbons with plastic coverings or other unnatural preservatives are *not* authorized. The width of the pocket determines the number of ribbons in each row. Larger-size coats, jackets, or shirts with correspondingly larger pockets have 4 per row; smaller ones only 3.

*The term "length" is based on the fact that a piece or "length" of ribbon is cut from a bolt or large roll of ribbon.

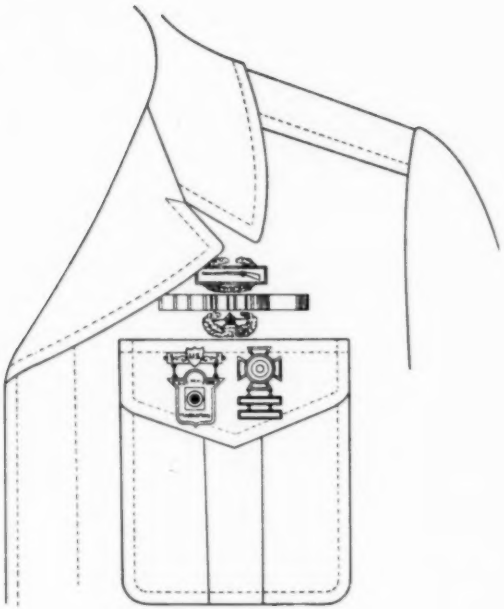

Figure 7. Wearing of ground badges* and qualification badges with service ribbons. In the example above, the Combat Infantryman Badge, Glider Badge, distinguished designation badge and sharpshooter badge are being worn. Parachutist Badge or other ground badges are *not* worn on the pocket flap. Only two sizes of Combat Infantryman Badge are authorized for wear with the uniform: blue background 7/16 inch x 3 inches and 3/16 inch x 1 3/4 inches.

*There are eleven ground badges in current use including the Combat Infantryman Badge, Medical Badge, Parachute Badge, and Glider Badge.

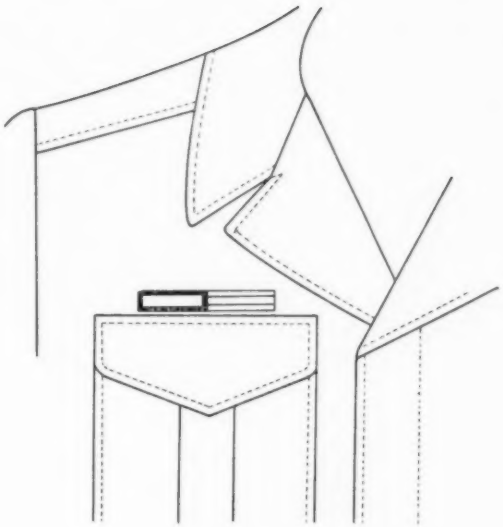

Figure 8. Wearing of the Distinguished Unit Emblem and the Presidential Unit Emblem. When Army personnel are authorized to wear the Presidential Unit Emblem (a Navy decoration) it is worn on the right breast and not on the left breast as worn by Navy personnel.

Figure 9. The only authorized form of French Fourragere and/or Belgian Fourragere. Additional loops are not authorized.

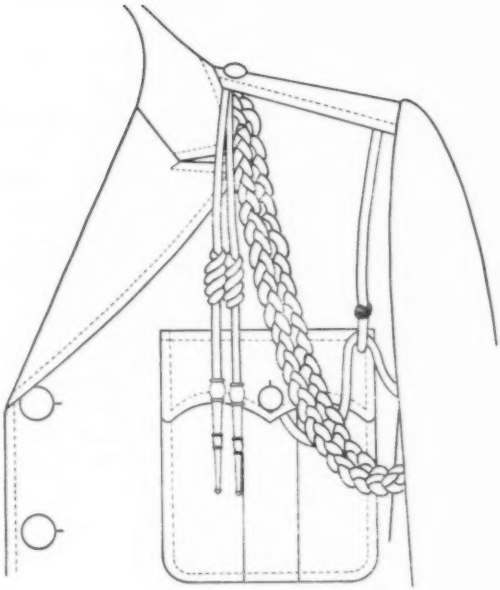

Figure 10. Wearing of French Fourragere, Belgian Fourragere, and Netherlands Orange Lanyard. Wearing of the Fourragere on the right shoulder is not authorized.

Reverse Slope Defense

By Maj Edmund L. Mueller, Infantry

SOMETHING OLD

********* *Exposing to the French a long and easy slope of innocent aspect and a blind skyline, the ridge dropped steeply on its inner face, affording perfect concealment to the defenders until the moment came to reveal them. For the Wellingtonian defensive had the splendid simplicity of a booby trap. Its modest objective was to spring unsuspected forces upon surprised attackers, and San Christoval (like Busaco before it and Waterloo a few years later) was admirably suited to this simple pleasantry. The attackers would pant uphill towards the blind skyline; somewhere behind the crest a line of British infantry would crouch, completely sheltered from artillery and waiting happily to fire its volley, utter its huzza, and leap forward with the bayonet.*********** (Peninsular Campaign, June 1812, from the biography, WELLINGTON, by Philip Guedalla.)

SOMETHING NEW

Before World War II we gave little thought to reverse slope defense; most of us had not heard of it. Soon after the beginning of the North African campaign, we began to hear a lot about the "new" form of defense the Germans were using and how difficult it was to overrun. At the same time our troops, who were defending on the forward slope, were beginning to feel the effect of enemy direct fire weapons and observed artillery fire. Actually our officers, especially the junior officers, knew very little about organizing this form of defense except from what they had seen of overrun German positions; and yet, by applying

the principles they knew for defense, they were successful at it.

Here is an example of a lieutenant who was forced into a reverse slope defense because of the circumstances, and who organized a successful position. The time and place was March 1943 in North Africa. The 18th Infantry (Gafsa and El Guettar having been captured) was attacking east along the Gabes road. As the regiment approached the hills just east of El Guettar it was ordered to occupy a defense position.

The first platoon of Company K was ordered to organize a hill to the flank, off by itself. The hill was small, about 200 yards wide, with a gentle slope both front and rear. The rear slope was cut by a small wadi, a ditch about 4 feet wide and 5 feet deep, which paralleled the crest of the hill.

It was at the foot of this hill that Lieutenant 1st Platoon Company K found himself, with his platoon, on the chill gray morning of 22 March. The forward slope was under scattered small arms fire from enemy positions in the desert. The lieutenant knew, from G-2 channels, that the German 10th Panzer was somewhere out front and that he could expect a tank attack anytime that day.

Knowing he had to do something about getting into position, he climbed to the crest of the hill to reconnoiter the forward slope. His reconnaissance, however, was cut short when the enemy opened fire on him. Rolling back under cover he thought his situation over. He knew he couldn't place his platoon on the forward slope until dark because of the fire and yet he had to have some tank protection before the Germans attacked.

Realizing he had to make use of any possible tank obstacle, he again crawled up to the crest to check the forward slope. There wasn't a thing that could be used except that wadi to his rear. It would make an excellent obstacle if only it was on the forward slope. Suddenly he began to look at the area with new eyes. The Germans had been defending on the reverse slope and theirs had been tough positions. If he organized on the reverse slope, behind the

wadi, his troops could prepare their positions during daylight because the crest would conceal them. Also the wadi would give him that needed antitank protection.

The 10th Panzers attacked at 0400 the next day. In fact they made four attacks across the crest of the hill, each one being repulsed with heavy losses to the Germans. The 1st Platoon held. (Condensed from TRY THE REVERSE SLOPE by Lt Col R. G. Emory and Lt Milton M. Thornton, published in the February, 1944, INFANTRY JOURNAL.

CONSIDERATIONS

Instruction in defense has stressed forward slope defense—and properly so. There are certain advantages a forward slope defense offers over a reverse slope; principally, long range observation from within the battle position and long fields of fire for flat trajectory weapons. However, since the fire power of all armies is increasing, the reverse slope defense, because of the protection it offers from high angle and direct fire, may be of greater value to us in the future. Let us then consider the following:

1. WHAT is a reverse slope defense?
2. WHEN and WHY is it used?
3. HOW is it organized?
4. HOW is it conducted?

What is a reverse slope and what are its distinguishing features when used for defense? Definitively, it is the part of the slope masked from enemy direct fire and observation by the topographical crest. To achieve a successful reverse slope, we must deny this topographical crest to the enemy. *This premise is significant.* Once we concede possession of the crest we no longer have the advantages (as discussed below) of a reverse slope position.

Why use this form of defense? Basically a reverse slope is occupied to get concealment. Of course, there are other factors which justify this defense. But the crest between the reverse slope position and the enemy offers comforting concealment. This concealment provides several advantages over a forward slope defense, and also some disadvantages.

The advantages follow:

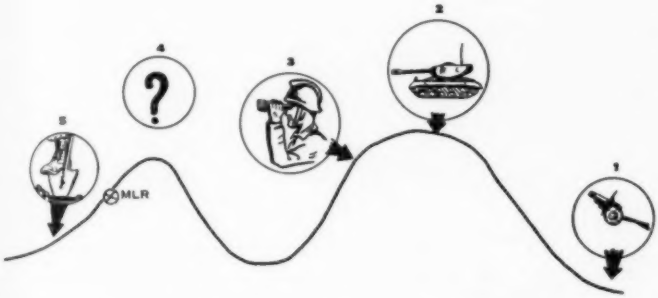

Figure 1. Advantages of Reverse Slope Defense.

1. The enemy cannot make a detailed plan of attack on your position. He cannot observe your troops on position, except by air.

2. Enemy direct fire weapons cannot hit your position because of the crest.

3. The effect of enemy observed artillery and mortar fire is greatly reduced. Except for air observation, the enemy cannot observe his fire.

4. The defender may gain surprise. Troops on the MLR do not disclose their position by prematurely firing because they cannot see the attacker until he crosses the crest, at which time he is within effective range.

5. Troops on the reverse slope have flexibility of movement; as much as enemy air observation permits. Positions may be worked on and improved during daylight, fields of fire cleared and obstacles improved. (See Item 5, Figure 1.) This freedom of movement allows the commander to better supervise the health of his troops and keep them in condition. Troops are more easily resupplied on position. This freedom of movement also allows counterattacking troops to reach their assault positions with much of the effect of enemy artillery and mortar fire reduced. (See Figures 2 and 3.)

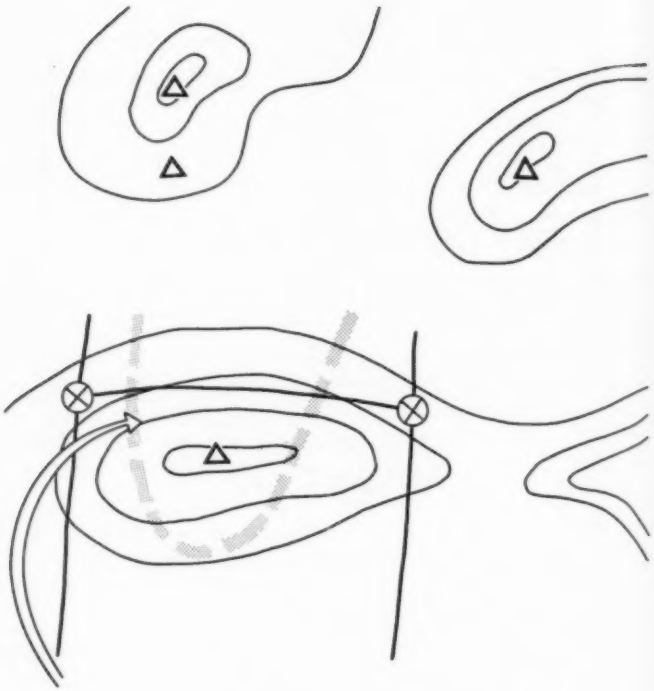

Figure 2. In forward slope defense, counterattacking forces are exposed to enemy observation to the front.

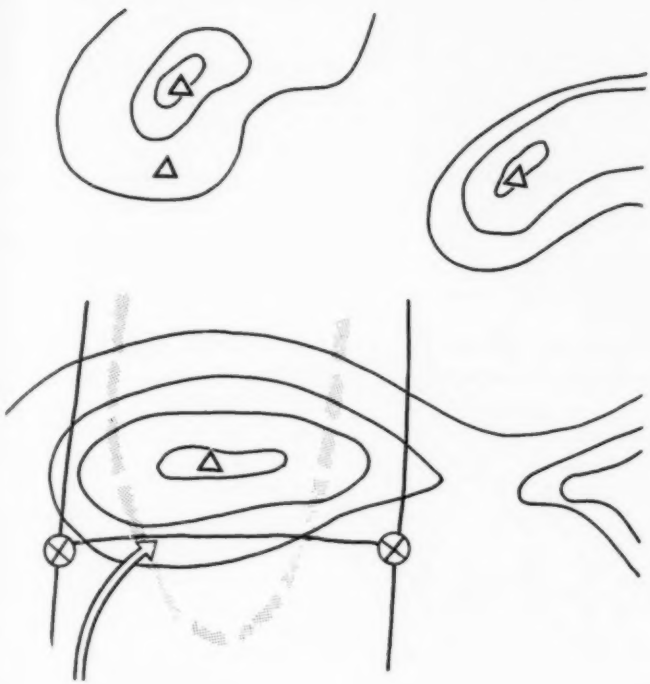

Figure 3. In reverse slope defense, counterattacking forces are masked by the crest from enemy observation to the front.

Disadvantages:

1. Maintaining observation on the enemy is difficult because of the obstructive crest.

2. A reverse slope position is vulnerable to a night attack; again because the crest provides a mask for enemy troops to deploy for the assault with comparative freedom close to the position.

3. Mine fields and obstacles on the forward slope are difficult to cover by fire because of lack of observation forward of the crest, and our inability to fire flat trajectory

weapons from the reverse slope positions on targets on the forward slope.

The WHEN and WHY of a reverse slope defense are so closely associated that they may be considered together. Under the following conditions a reverse slope defense might be favored over a forward slope defense:

1. When lack of cover and concealment permits observed enemy shell fire to make the forward slope untenable.
2. When the terrain affords better fields of fire on the reverse slope than on the forward slope.
3. To avoid dangerous salients in the MLR. (See Figure 4.)
4. When possession of the crest to the front is not essential to the observation of fire.

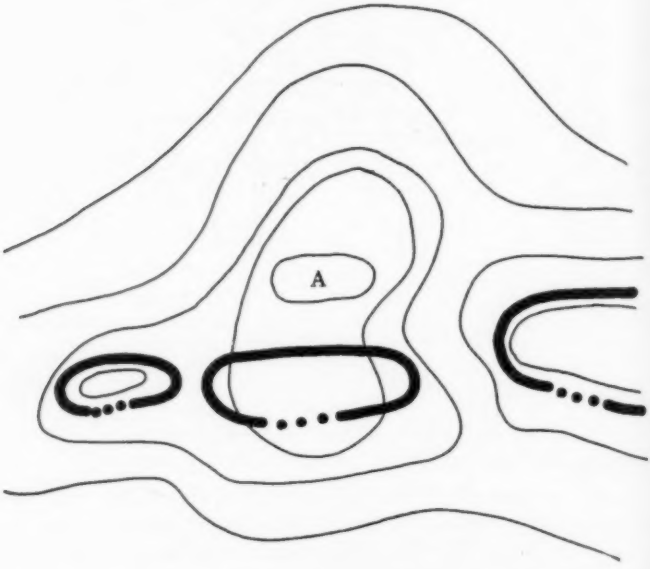

Figure 4. Although at first glance the key terrain feature (Hill A) appears to be unoccupied, it is included in the general scheme of defense discussed later in this article. It is undesirable to have the center platoon occupy the forward slope because it would form a salient.

ORGANIZATION

A reverse slope defense is neither completed nor effective unless the crest is included in the defensive scheme. A schematic organization of a battalion in defense on a reverse slope is illustrated in Figure 5. The commander developing this defensive organization, step by step, keeps in mind that each consideration should reflect the profitable use of the advantages of the reverse slope, while overcoming the disadvantages.

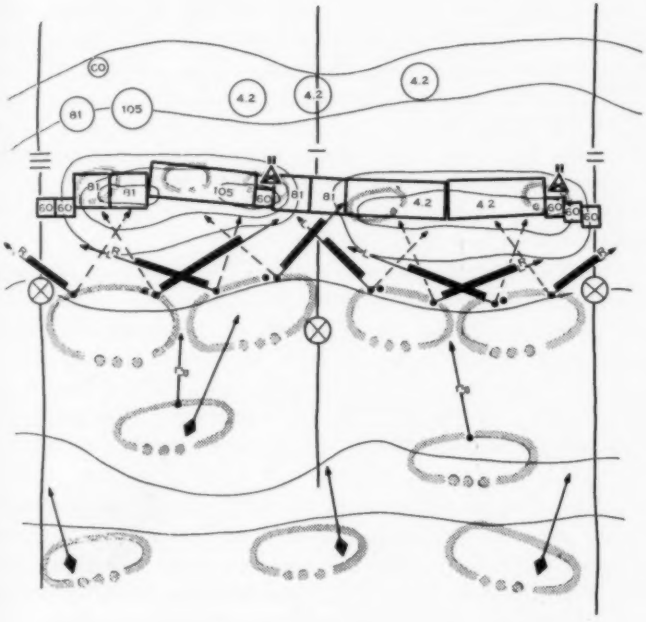

Figure 5. Interior Battalion in reverse slope defense.

First, the considerations involved in organizing the MLR on a reverse slope: the MLR is located for maximum surprise fire on the enemy as he crosses the skyline. Hence, the most important factor influencing the location of the front-

line troops is fields of fire to the crest. We want to be able to place all possible fire on the crest and also be able to cover the area between the MLR and crest. Other factors that influence the selection of the MLR are: cover and concealment for the troops and the best use of obstacles. The MLR must be within effective small arms range of the crest—no farther back than about 500 yards from the crest. It should be far enough from the crest so that the fields of fire are long enough to give the defender time for aimed fire on the enemy. Other factors being equal, the best distance from the MLR to the crest is from 200 to 300 yards.

As in the forward slope defense, the final protective lines are planned to present, as nearly as possible, a continuous interlocking band of grazing fire across the front of the battalion. The most effective position for a machine gun is on the reverse slope of one hill where it can cover the forward slope of an adjacent hill. Such an ideal position is not always possible; however, it should be located for the best grazing, flanking and interlocking fire, and be able to fire to the crest.

The crest line is the most critical feature in the reverse slope defense structure. It is from here that the enemy will gain observation on our position, direct his fires, and determine our defensive strength. Therefore, first priority fires, the barrages, are planned along the line of the crest. Since barrages are planned on the crest of the hill, the MLR should be back from the crest at least 100 yards for safety.

Artillery and mortar concentrations are planned forward of the crest in the same manner as in a forward slope defense. Particular care is taken to cover with planned concentrations all approaches and likely assembly areas on the forward slope in case observers on adjacent hills cannot observe this fire when the enemy is attacking.

The characteristics of this form of defense permit troops along the MLR to see only as far as the crest of the hill. We want to stop the enemy, or at least slow him down, while he is still a long distance from the MLR. If the situation permits, the combat outpost is established out in

front; but once the outpost withdraws, we want to be able to continue the fire on the enemy from weapons located in, or near, the battle position. The best place to observe for this fire is on, or forward, of the crest. Local security is provided for the units occupying the MLR.

Observation and security groups are placed across the entire front on, or just forward, of the crest. Troops needed with these observation and security groups include the observers for artillery and mortars. They should be located where they can observe and bring fire anywhere across the front. Terrain and enemy situation permitting, these observation and security groups should be strong in automatic weapons, tanks, and 57-mm and 75-mm rifles, so as to delay the enemy's advance.

Groups vary in size and organization. For example, if a group established on the crest is in heavily wooded terrain where observation is restricted, it serves primarily as security, and its strength is chiefly riflemen and light automatic weapons personnel. On the other hand, if a group located on a crest can observe a large portion of the terrain and can cover a tank approach, its strength is augmented by observers and antitank weapons.

Observation and security groups are strengthened at night to prevent the enemy from occupying the crest. The degree of strengthening depends largely on the local situation. If reports indicate a night attack in strength, the bulk of the troops on the MLR are needed on or forward of the crest. In any case, more troops are needed on the crest at night to restrict the movement of enemy forces under cover of darkness.

Patrols, combat and intelligence, further strengthen our position. They are used to the fullest extent possible to harass the attackers and to give early warning of their approach.

The same principles apply to the antitank defense of a reverse slope defense as apply to a forward slope defense. Tanks are located where they can best support the antitank defense of the battalion. As in the case of machine guns, the best location for a tank is on the reverse slope of a hill

adjacent to the one defended. Keeping in mind the short distance from the crest to the MLR, we use obstacles and mines between the crest and MLR to slow the enemy tanks down sufficiently for our antitank weapons to destroy them. If the supply of AT mines permits, mine fields may be employed on the forward slope to further delay the enemy's approach. These fields should be covered by weapons located in the observation and security group positions.

The general considerations of defense—missions, doctrine, principles, and terrain evaluation—apply as much to a reverse slope defense as to a forward slope. Factors influencing frontages, depths, and disposition of units have equal application. Each front-line company is normally disposed with two platoons on the front line—one or both platoons on the reverse slope. The support platoon is located where it can best carry out its missions of protecting the front and flanks of the company, firing in the gap between the front-line platoons, and stopping a penetration. If there is no high ground to the rear of the MLR, the support platoon then also occupies positions on the reverse slope. The riflemen of the security and observation groups normally are furnished by the support platoons of the front-line rifle companies. Their conduct is controlled by the battalion commander similarly to that of the combat outpost. The reserve company occupies prepared positions in the rear of the battalion area and is responsible for planning and executing the counterattack.

CONDUCT

In the conduct of defense, the security and observation groups take the enemy under fire at long range, calling down more intense and accurate fire as they approach the crest. When the security and observation groups withdraw, final protective fires are called for on the crest. If the enemy attempts to cross the skyline, he is taken under fire by the weapons on the MLR. With one exception, the considerations for executing the counterattack are the same as on a forward slope. The exception is that counterattacking forces must pursue the enemy forward of the MLR and

reoccupy positions on the crest to successfully control the reverse slope.

ADAPTATIONS

Fundamentally, there are two other adaptations for the reverse slope defense of an area. When it is desired to use as much as possible the fields of fire afforded by the forward slope, but at the same time reduce exposure to observed enemy fire to a minimum, the following organization is typical: Firing positions on or forward of the topographical crest are prepared; however, the personnel to man these positions are kept for the most part on the reverse slope. A skeleton force, taken from the front-line platoons, is kept in the positions to slow up the advancing attackers while the positions are being manned. The positions are only manned at night or to repel an assault. Reserves are held in sheltered positions and are used for counterattacks either over the crest or around flanks of the hill.

In addition to using the reverse slope for a main battle position, or for shelter, it may be used as a field of fire. If both the forward and reverse slopes are unsuitable as locations for the battle position the hill may still be denied to the enemy or made excessively costly to him by using the reverse slope as a field of fire for positions located on other hills. For this purpose, artillery, mortar, and long range machine gun fires are laid down on the reverse slope, the crest, and if possible on the forward slope. The use of flanking hills for positions frequently affords grazing machine gun fire which will rake otherwise protected areas just over the crest.

The three general types of reverse slope defense will of course require modifications to suit local conditions, and can be employed frequently in combination with one another, or with a defense based originally on a forward slope. Thus the MLR may be located on the forward slope, and support and reserve positions prepared and occupied on the reverse slope; or, the MLR may be located on the reverse slope and be supported by fires from other hills to

the flanks or rear; or troops on the reverse slope may be used to counterattack around flanks of the hill while fires from other hills are used to pin down attackers who have reached the forward slope.

CONCLUSIONS

Considering the defense of a reverse slope, one fact is clear. *The integrity of the position is maintained only so long as we retain control of the crest either by physically occcupying it or by denying it to the enemy by fire.* The organization of an area for defense on a reverse slope must reflect this basic premise. And, as heretofore established, we must apply the principles of defense and the mission of infantry to the fullest extent possible to achieve this aim.

Town Combat

By Major Houck Spencer, Infantry

Any combat realist will tell you that fighting in towns against a resolute enemy is a tough proposition. He'll tell you that you'll almost certainly have two enemies: the defenders and confusion. The latter is often the worst. Despite your well-laid plans and despite aggressive and intelligent execution of those plans, you'll have your fill of confusion.

This statement may not make pretty reading, but it makes sense. It makes even more sense to say that you must recognize this second enemy and mentally prepare yourself to overcome him. For there'll be times when you *don't* know where your first squad is; you *don't* know exactly where your supporting tanks are; you *can't* contact all your elements because your communication is temporarily snafu; and you're not even sure who is winning. It all adds up to confusion but not to defeat. Don't lose your head; keep on throwing punches, and remember that the shooting enemy is just as confused as you are.

When, at the request of the editors, I began to outline an article on town combat, my first thought was to write a problem. You, the reader, would be the attacking platoon leader. You'd have a number of requirements, to each of which I'd give the "school solution." Then we'd have a discussion of each solution. You would, of course, have a map to help you.

I actually wrote the problem. I think it was a good problem. It was 30 pages long and had lengthy discussions. But I tore it up. It had a "canned" odor—too pat.

So now I'm going to give you some general thoughts on town combat—some principles proved to be sound and applicable to any town. You'll notice, as you read, that

many small details are unaccounted for. Purposely so—for to write down every conceivable DO and DON'T and every possible situation that might arise—would serve only to confuse you. What is a DO in one town, may be a DON'T in another. The immediate decisions that add up to victory are up to you when you're in that town. . . .

TOWN AND COUNTRY COMBAT—THE BIG DIFFERENCES

The enemy: He will be very close—on the other side of the wall in the next room; or overhead; or below, in a cellar strong point.

The enemy's weapons: They will be very close, too, and very hard to locate. Buildings conceal them well.

Observation and fields of fire: Buildings and debris obstruct both vision and fields of fire. Flames and smoke in confined areas often blind your observation.

Control: Always a problem in any terrain, control is frankly a headache in towns. Your squads and weapons teams are in different rooms, different buildings, different alleys—and probably separated by a fire-swept street. You can't see much of what is going on—you can only hear. Overall progress is difficult to determine.

These are the big differences; and because they are differences, they are also special problems for which there is no set rule for solution. Pre-planning before the fight, yes; there are sound principles for that, and we'll discuss them shortly. But once the battle has begun in the town you'll find yourself improvising to meet particular situations and depending, more than ever, on the squad leaders—their fast-thinking, fast-acting qualities of leadership. In town combat, the squads are often *independent* commands acting under your general plan toward the overall objective. Your control is seldom tight and, as a matter of fact, need not necessarily be tight, provided your junior leaders and men have been so *thoroughly oriented* in advance that there is *no doubt* in their minds about what is to be done.

One final thought about the big differences: *The enemy has the same problems.*

THOROUGH ORIENTATION IS VITAL

Simply stated, orientation means telling and showing. There is no better way to do this than *orientation by observation*. Let the men *see* the objective and tell them your plan for taking it while they are looking at it. A good look, accompanied by a simple, practical plan, is better than ten thousand words of description.

Always important in any type of operation, orientation is vital when planning to attack a town. You can tighten your orientation by procuring or making a sketch of the town, having your junior leaders prepare exact copies, and then discussing in detail what your squads and attached weapons teams are to do. The squad leaders, in turn, orient their men with the squad sketches. This is a very practical method of orientation and, when coupled with an actual look at the town, almost ideal. However, since combat conditions are seldom ideal, it will often be impractical to show all your men the town—only your leaders—in which case the sketches are an excellent substitute.

In Figure 1 you see a very simple sketch of a very small town. Beyond the town is the company objective, the high ground. You are with the company commander on Ridge A. In the informal language of the battlefield, the company commander says, "Bill, I wan't your platoon to clear out that town when the company moves out. S-2 says there's Aggressor in it—some strong points. Let me have your plans and recommendations in an hour."

The company commander probably adds some more information and a suggestion or two—but the important thing right now is that you've got a warning order and must start planning. Orientation is a vital part of your planning.

In this article we are not going to discuss your detailed plan of attack—probably there are several different plans that would work and your plan may be as good or better than mine. All we will talk about here are some methods that will help you and which are applicable to any town

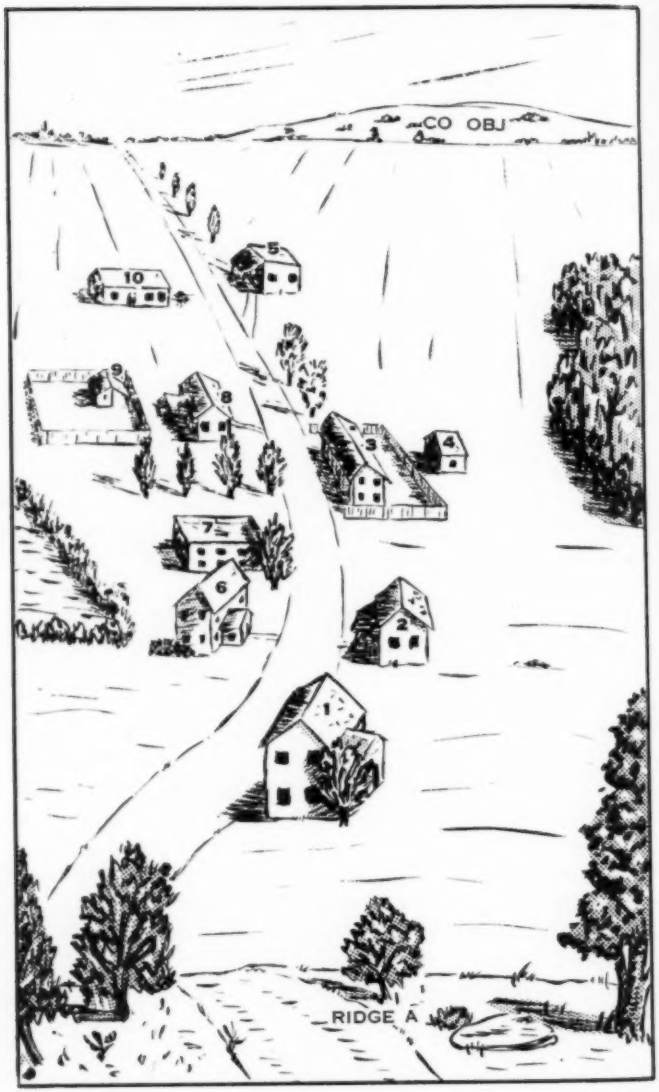

Figure 1.

(or sector of a town) that you may be called upon to assault.

Notice that the buildings in the sketch are *numbered.* Why? There are several reasons why this identification system is helpful. One, it gives you and your company commander a common reference point for reporting locations and requesting supporting fires. For example, suppose one of your squads has fought its way to building 8 but cannot advance because of heavy fire from building 10. The situation is communicated to supporting tanks or other heavy weapons by asking for fire on building 10. Obviously this is a better method than trying to describe, in the heat of battle, the source of trouble—such as "the long, low building on the outskirts of town to the left of the road." (The company commander and leaders of attached weapons teams must, of course, have the same sketches).

The numbering method helps *control.* Assume, for example, that you have given the second squad the job of taking all buildings on the right side of the road—a simple, direct plan. During the fight you are anxious to know about that squad's progress. Remember, however, that you cannot always observe for yourself. Nevertheless, by reporting that his squad is now in buildings 3 and 4, you, the platoon leader, have a brief but clear picture of the situation. In this case, since building 10, the enemy strong point, has a good field of fire across to building 3 and 4, you might order the second squad to remain in its present location until building 10 has been knocked out. You might, or you might not; that decision is up to you. The main point to get there is this: The squad is oriented and *you* are oriented. Since you know what is going on, you are in a position to make sound decisions.

A final thought about orientation: You expect your company commander to give you all possible information, don't you? *Your men are entitled to the same from you.*

A WORD ABOUT ELECTRICAL COMMUNICATION

Electrical communication has a way of working brilliantly when it is not needed and with something less

than brilliance when it is. This is not the fault of the device itself but of the human element operating it, the terrain, or its chance destruction by enemy fire. A radio may be smashed or a telephone wire cut—just when they are needed. The SCR 536 ("walkie-talkie") with which your platoon is equipped sometimes works very poorly when operated inside buildings. Therefore it is sound policy in your planning to recognize the possiblity of electrical failure by not placing all your communication eggs in one basket.

Some practical substitutes are:

Special arm-and-hand signals, agreed upon in advance and thoroughly understood by all. These may be of your own invention and in addition to those outlined in FM 7-10.

Colored smoke grenades or flares, agreed upon in advance, to indicate a unit's position.

Chalk-marking buildings to indicate they have been captured and cleared of the enemy. (In some towns this should be taken with a grain of salt; the enemy may reenter a captured building from subterannean cellars).

Messengers—you will probably use them most of all.

A final thought about communication: Since you depend on it for control, give communication a thorough going over in your planning. Poor communication means poor control.

THE ATTACHED WEAPONS

Depending on the situation and what the higher command thinks of the probable enemy defense, you may have a section of tanks, a machine gun squad, and a 57-mm rifle squad attached to your platoon. If attached, these weapons increase the killing power of your platoon and also increase your problems and responsibilities. For you now have a *reinforced* rifle platoon—more men, more weapons, more power, more *punch.* To get that punch in the right place at the right time:

Include the attached leaders in your orientation and planning as if they were regular members of the platoon. There have been many instances where attached troops

have been left out in the cold, so to speak, hardly aware of what was expected of them.

Know the capabilities of the attached weapons—what they can and can't do. If not exactly sure on all points, ask.

Ask, also, for their recommendations. You, of course, have the final say-so, but give the recommendations the weight they deserve.

Remember that these attached weapons need riflemen for protection.

You will notice that nothing is mentioned here about *how* to use these attachments. That depends on your particular plan and situation. A sound rule, however, is to plan thoroughly the sequence in which these weapons will displace—such as when one building is taken a certain weapon will displace there to cover the advance of the riflemen to the next building. Remember that tanks have an external telephone so that accompanying riflemen can designate targets of opportunity.

Think of your attached men and weapons as integral parts of your platoon—not as helpful strangers along for the ride.

THE BIGGER THE TOWN, THE HARDER THE JOB

The little town shown in Figure 1 presents a *comparatively* easy problem—just an incident on the way to the company objective. However, look at the town in Figure 2—a much bigger town; buildings close together; many streets and avenues; many blind spots; tactical wire and an anti-tank ditch; probably mines. A much bigger problem; in fact, too big for one platoon. At least a reinforced company objective.

In a situation of this type your platoon would probably be assigned a *sector* as its objective—say the buildings to the left of Main Street. This increases your problems because you must not only control your own platoon but coordinate with the platoon on your right. The men in both platoons must know the plans of each. Occasions will arise when elements of your platoon can assist by fire the advance of the right platoon; and vice versa. This calls

for very close coordination and meticulous planning. And remember the company commander—he must have continuous information about your location and progress. To give accurate information, you must first *have* it.

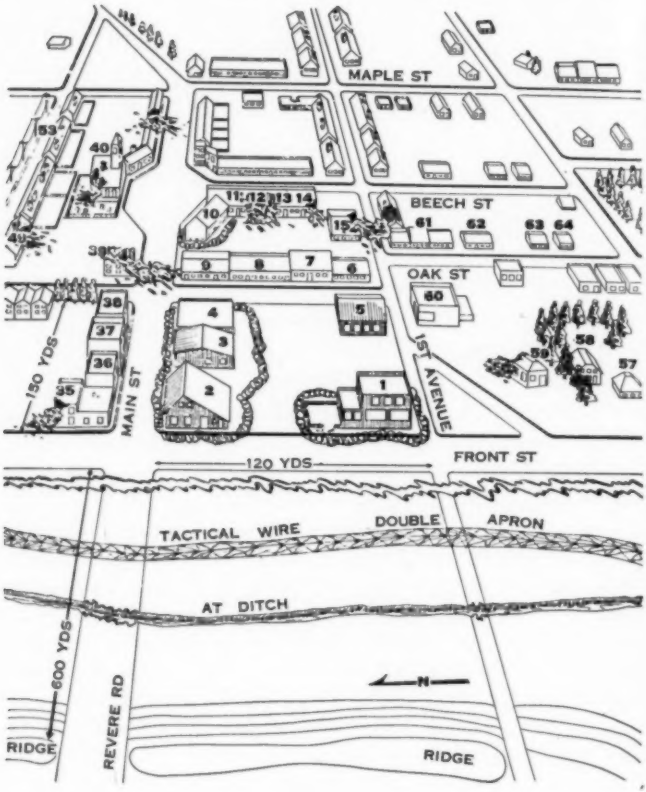

Figure 2.

Who will breach the obstacles in front of the town? Probably combat engineers. Protected by supporting fires and smoke, engineer assault teams, working in each rifle platoon zone, will breach one personnel lane through antipersonnel mines and one gap in the tactical wire. These

teams use bangalore torpedoes, projected line charges, or infantry snakes (linear explosive charges which are propelled for short distances by rocket devices).

The combat engineers and supporting fires will help you get into your sector of town, and then it's up to you.

IN CONCLUSION

I began this article by saying that confusion is often worse than the enemy. You are confused when you don't know what is going on, when you don't know what your squads and weapons teams are doing, and when you make decisions without accurate information.

Your main problem, then (assuming your plans and orientation to be as thorough and practical as you can make them), is to beat the enemy by beating confusion, by having a clear picture of your platoon's situation at all times. By having *control.*

Use your platoon sergeant and assistant platoon sergeant to help with control. Give them *specific* jobs, such as bringing up the support squad or a weapons team when and where it is needed. Too often these noncoms are used as excess baggage around platoon headquarters, apparently on the theory that one of them takes over command if the platoon leader is knocked out. Keep them circulating throughout your zone; use them to bring you information. You can't see everything yourself in town combat—the buildings get in the way. Proper use of these sergeants, combined with other control methods previously mentioned, will do much to avoid confusion.

You will always have some confusion—recognize the fact. In battle, particularly in towns, the unexpected happens. The enemy may suddenly appear in your rear, reentering a captured builing from a roof or tunnel. He must be dealt with. But how? By whom? Quick decisions, quick improvisations are called for. *Flexibility. Imagination.*

Yes, fighting in towns against a resolute enemy is a tough proposition. But it can be made easier by thorough orientation, thorough planning, direct and simple orders, and the best system of control you can devise.

Quarterly Writers

Lieut. Colonel Bruce Palmer, Jr., author of INFANTRY AND VT FIRES, is a graduate of the USMA, class of '35. After various assignments in staff and command duty, he became Chief of Staff, 6th Infantry Division, in 1944-45. He commanded the 63rd Infantry Regiment in the occupation of Korea, 1945-46. For the past year he has been a member of the Staff and Faculty, The Infantry School.

* * * *

Captain Frederick H. Black, Jr., co-author of the QUARTERLY'S current Small Arms Working Model articles, graduated from West Point in 1944 and saw combat with the 99th Infantry Division in Europe. After 2½ years of occupation duty with the 16th Infantry, First Division, Captain Black reported to Fort Benning, where he is now an instructor in Small Arms at The Infantry School.

* * * *

SFC Coats Brown, who collaborates with Captain Frederick H. Black on the current QUARTERLY series of Small Arms Working Models, is a Distinguished Marksman with the .30 caliber rifle. In 1939, he won the National Individual Rifle Match at Camp Perry, top man in a field of 2,027 competitors. He was a weapons instructor at the University of Tennessee ROTC from 1940 to 1943. A veteran of 15 years service, he is now a senior draftsman at The Infantry School.

* * * *

Major Schiller F. Shore, whose short, tough article on the Bayonet leads off this issue, was a liaison officer with the Chinese divisions in Burma and East China in 1944-45. He found time, he says, to give the Chinese some good old American bayonet instruction. He is now in charge of Fort Benning's big printing plant.

* * * *

We can't tell you much about Lieut. Colonel John T. Ewing, whose second article on THE COLONEL'S MOTORS appears in these pages. Col. Ewing, who was Director of The Infantry School's Automotive Department, left for a new assignment before we could corral his personal history. We suspect, however, that at some time in his career Colonel Ewing encountered the live counterpart of Colonel B. F. Finch,

the testy regimental commander who is the central character in these automotive articles.

* * * *

The author of CAPABILITIES OF THE NEW AIRBORNE DIVISION, Major Lyman S. Faulkner, graduated from West Point in 1941 and joined the Armored Force. After a stint of airborne training in 1943, he went to the 11th Airborne Division and served as S-2, 511th Parachute Infantry. He participated in the airborne assault at Tagatuy Ridge and Aparri in the Philippines, and later commanded the Second Battalion, 187th Parachute-Glider Infantry in the occupation of Japan. He is now an instructor in Regimental and Battalion tactics at The Infantry School.

* * * *

Captain Marvin J. Berenzweig, who winds up his series on THE TECHNIQUE OF INSTRUCTION in this issue, is a graduate of the USMA, class of '43. He served in the Pacific Theatre for 46 months with the 6th Infantry Division, 38th Infantry Division, and Headquarters Eighth Army. He is now an instructor at The Infantry School.

* * * *

Captain William J. Hojnacki, author of the AIRBORNE QUARTERMASTER PARACHUTE MAINTENANCE COMPANY, is an airborne man from way back. He was one of the early members of the 11th Airborne Division in which he rose to be Battalion Executive and later Battalion Commander. He's been an instructor with the Infantry School's Airborne Department since 1947 and is now Chief of the Parachute Rigger Group.

* * * *

Major David Milotta, who writes how to WEAR 'EM RIGHT in this issue, is a frequent contributor to military magazines. An old First Division (Red One) man, Major Milotta won the DSC in North Africa. He was with the Leadership Committee of The Infantry School for the past three years and is now a student at the Command & General Staff College, Fort Leavenworth, Kansas.

* * * *

Lieut. Colonel Charles F. Coates, whose article REST AND REHABILITATION, tells how tired regiments are made new again, commanded the 1st Battalion, 123rd Infantry, 33rd Division, throughout the New Guinea and Philippine campaigns. A Command & General Staff College graduate, Col. Coates has been an instructor at The Infantry School since 1947.

* * * *

The author of "THIS PLATOON ATTACKS—," Captain Charles K. Blum, won a battlefield commission in March 1944 and became a platoon leader and later company commander in the 7th Infantry Regiment of the Third Division. He is a veteran of the Anzio Beachhead. He is at present a tactics instructor at The Infantry School.

* * * *

As you might guess from the title of his article, WANTED: BETTER MARKSMEN, Lieut. Colonel M. C. Taylor's hobby is pistol and rifle shooting. A

USMA graduate, class of '35, Colonel Taylor is a Distinguished Pistol shot and was a member of the Infantry Pistol Team that won the National Championships at Camp Perry in 1940. He is now Chief of the Light Weapons Group at The Infantry School.

* * * *

Captain J. R. Flynn, who writes the controversial WANTED: REALISM IN WEAPONS MARKSMANSHIP TRAINING, was recently on the staff of the 3rd Infantry Division, even more recently a company commander in that famed outfit. As a rifle company C. O. it's an even bet that he tries to practice what he writes.

* * * *

Captain George R. Adjemian, author of the article on Army Extension Courses, 8000 STUDENTS BY MAIL, is a graduate of the USMA, class of '41. He served throughout the war with the 159th Infantry in the Aleutian Islands and in Europe. He is now with the Extension Course Department of The Infantry School.

* * * *

Major Houck Spencer who pens a comprehensive piece about TOWN COMBAT, was a squadron commander in the 7th Cavalry Regiment in the Leyte and Luzon campaigns. A graduate of the Advanced Class, The Infantry School, Major Spencer remained at Fort Benning to instruct later classes. He is now on the staff of the Academic Department.

* * * *

Major Edmund L. Mueller, author of REVERSE SLOPE DEFENSE, was a company commander and battalion executive officer in the First Special Service Force (a specially constituted combat unit of Canadian and American troops). He has been an instructor at The Infantry School since 1947. He has specialized in arctic and winter warfare and has written extensively on the subject. A versatile writer, his article in this issue has nothing to do with winter.

Index of Quarterly Articles

October 1949 through July 1950

For the convenience of its readers the QUARTERLY presents in this issue synopses of all articles appearing during the past year.

A limited number of copies of the October 1949, April and July 1950 issues are available through the Book Department, The Infantry School, Fort Benning, Georgia, at 65c a copy. The January 1950 issue is sold out.

OCTOBER 1949

THE NEW RIFLE MARKSMANSHIP COURSE—*By Maj Louis R. Moore, Infantry.*

A description of the rifle marksmanship course, now approved in a Department of the Army Training Circular. This article points out the effort made to introduce more realism into our marksmanship training, describes the ranges used, and shows the tables fired, together with scores required for qualification as Marksman, Sharpshooter, and Expert.

A NEW CONCEPT IN COMPANY ADMINISTRATION—*By Capt Maurice W. Kendall, Infantry.*

How the warrant officer, now authorized for companies of the combat arms, takes some of the backbreaking administrative load off the company commander.

ARMORED PERSONNEL CARRIERS—*By Lt Col George B. Pickett, Jr., Cavalry.*

Discussion of the armored personnel carriers now used, or under study, for transporting personnel on the battlefield. Here is brought out the advantages and disadvantages of such carriers, their tactical employment, and use of the firepower which they add to an attack.

MORALE ON THE MARCH—

A few, short, pithy observations on factors affecting the morale of marching troops. What to do to keep troops on the march fit and happy.

ANTITANK DEFENSE—*By Lt Col Russel O. Harris, Infantry.*

Antitank weapons, their use, and the employment of personnel in stopping attacks by armor. This article also shows a coordinated antitank defense and discusses utilization of built-up areas, rivers, and other obstacles to slow or defeat tanks.

SMALL ARMS INSTRUCTIONAL AIDS—*By Capt Frederick H. Black, Jr., Infantry.*

Description of some of the simple training aids used by The Infantry School in small arms training. Many of these aids can be constructed quickly and easily from the description and illustrations presented in this article.

TECHNIQUE OF INSTRUCTION: LESSON PLAN—*By Capt Marvin J. Berenzweig, Infantry.*

Short and to-the-point article on commonsense use and preparation of lesson plans for military training.

AIRBORNE INFANTRY REGIMENTAL OPERATIONS—*By Lt Col John N. Davis, Infantry.*

What an airborne infantry regiment can do and what it can't do in offensive and defensive combat. This article takes the reader through airborne regimental missions, effect of various factors on airborne operations, organization for, planning, and executing attacks, and what supporting arms and services can do to help the airborne regiment do its job.

ATTACK ON D'HORN—*By Capt Arvid P. Croonquist, Infantry.*

Historical monograph concerning the attack by the 2d Battalion, 39th Infantry, on D'Horn, small town in Western Germany. It is an excellent example of the use of coordinated fires to aid an infantry attack across wide open terrain.

ROADS, DRAINAGE, AND MUD CONTROL—*By Capt James K. Polk, Corps of Engineers.*

The effect of poor drainage on military operations, and how engineers *and infantry* can control the mud that often is as inimical to success of an operation as a shooting enemy.

TECHNIQUE OF FIRE FOR SINGLE LIGHT MACHINE GUNS ON BIPOD MOUNT—*By Capt Frank A. Blake, Infantry.*

A short description of The Infantry School's teaching on this subject.

RIFLE COMPANY IN A NIGHT RELIEF

A problem for reader solution. You assume the part of Captain, Company K, who is confronted with the task of relieving with his company another unit on the MLR. The problem gives you the situation, states requirements, and presents solutions and discussions against which you can check your own solutions.

JANUARY 1950

NEW ORGANIZATION OF THE AIRBORNE INFANTRY REGIMENT—*By Maj John W. Urban, Infantry.*

T O&E, with charts, showing men and equipment now authorized for the airborne infantry regiment. Major Urban discusses the missions and capabilities of the regiment and its units down to platoons.

ARCTIC CLOTHING FOR THE SOLDIER—*By Capt Thomas E. Lawrence, Infantry.*

What the Army is doing to dress its soldiers for comfort and mobility in the Arctic. Here is shown and described the clothing—underwear, uniform, gloves, hoods, and boots, which Army Field Forces Board 3 is testing for possible adoption by the Army.

TECHNIQUE OF INSTRUCTION: PERSONALITY AND THE LECTURE—*By Capt Marvin J. Berenzweig, Infantry.*

Another down-to-earth, highly readable little story that points up the need for injecting one's personality into the lecture when instructing troops.

MARGINAL DATA ON MAPS—*By Maj Donald D. Dunlop, Infantry.*

The author tells you how to interpret the great mass of highly condensed and highly useful information that is shown on the margins of military maps.

RATE ON THE MARCH

How to keep your men fit on the march by adjusting pace and cadence to the terrain. Article includes a nomograph from which you can determine what speed can be maintained by given paces and cadences.

THE NEW AUTOMATIC RIFLE COURSE—*By Capt Frederick H. Black, Jr., Infantry.*

Combat experience of World War II demanded a realistic revision of the rifle marksmanship course. This article discusses the revised course which places more emphasis on realism. It shows the courses fired, lists qualifying scores for Marksman, Sharpshooter, and Expert, and describes the ranges over which these courses are fired.

AGGRESSOR ARMY—*By Maj G. C. Warren, Jr., Infantry.*

A short description of, and method of using, the Aggressor Force, the Army's realistic maneuver enemy.

THE MEDICAL COMPANY INFANTRY REGIMENT—*By Lt Col John R. Darrah, Medical Corps.*

A highly detailed account of the mission, capabilities, and personnel available to that new regimental unit—the medical company.

TOO MUCH SUPERVISION?

Can that important command duty—supervision—be overdone? The author believes that supervision can be so all inclusive as to dull initiative on the part of junior leaders.

THE RIFLE COMPANY IN ATTACK: A PROBLEM—*By Maj George A. Clayton, Infantry.*

Major Clayton presents a situation, requirements, and subsequent situations and requirements that might logically face a rifle company commander making an attack. You, the reader, can put yourself in the place of the company commander, decide what you'd do in each situation and check your answers against solutions and discussions presented by the author.

USE OF HEAVY WEAPONS COMPANY COMMUNICATION AND TRANSPORTATION IN ATTACK—*By Maj Emil V. B. Edmond, Infantry.*

This article shows the communication and transporation equipment available to a heavy weapons company commander and discusses its use in an attack.

THE ENLISTED EFFICIENCY REPORT—*By Maj Ernest C. Englehardt, Infantry.*

How to use properly the Enlisted Efficiency Report as a selection device to measure a man's true worth.

APRIL 1950

THE COLONEL'S MOTORS—*By Lt Col John T. Ewing, Infantry.*

A crusty regimental commander, in a series of letters to his Motor Officer, who is attending a course at The Infantry School, tells the Motor Officer just what is expected of him, technically and administratively, when he returns to the regiment. The colonel's requirements are a good guide to the duties of a motor officer.

PREPARED FOR INSPECTION

The author believes that inspections which have been announced far in advance don't allow the inspecting officer to get a true picture of a unit's worth. He thinks that the company inspected with a minimum of warning will show its colors more truly than the one that has been slicked-up over a long period.

TECHNIQUE OF INSTRUCTION: APPLICATION—*By Capt Marvin J. Berenzweig, Infantry.*

In another short, pointed article, the "application" phase of Army instruction is explained by example. Pitfalls for the instructor, and proper methods of teaching by application are brought out by the author.

EARS OF THE INFANTRY—*By Lt Col Patrick B. Watson, Infantry.*

Here is described the device which most nearly approaches a "push-button" instrument of warfare in the infantry regiment. Lt Col Watson describes the Sound Locating Set GR-6, and how it is used to locate enemy weapons by sound-ranging and direction-finding.

TANK GUNNERY SUBCALIBER QUALIFICATION—*By Maj J. S. Sandiland, Infantry.*

With ammunition allowances a deterrent to training tank gunners, The Infantry School has worked out subcaliber devices and procedures for training these men with .30 caliber ammunition in lieu of the regular tank gun's 90-mm rounds. Courses fired, gunner's examination, and required qualifying scores are shown as well as the subcaliber range used for this training.

INFANTRY SCHOOL ENLISTED COURSES

A complete description of all The Infantry School courses open to the enlisted professional who wants to advance in his military career. Weapons, motor, communication, and airborne courses are described in detail.

THE NEW MAP GRID SYSTEMS—*By Maj Donald D. Dunlop, Infantry.*

To avoid the confusion of using different map grid systems in combined operations, the Army, Navy, and Air Force have adopted the Universal Transverse Mercator and Universal Polar Stereographic grid reference systems for joint use. Major Dunlop explains these systems and how they are used.

TANK-ARMORED INFANTRY COORDINATION IN THE ATTACK—*By Lt Col George B. Pickett, Jr., Cavalry.*

The author shows how tank-armored infantry teams are formed, the methods they use to attack, and cites numerous World War II examples of successful tank-armored infantry team attacks.

THE INVISIBLE SOLDIER—*By Capt Harry V. Beck, Infantry.*

There probably isn't a combat-experienced doughboy who hasn't been in a bad spot where he sorely wished he could evaporate and disappear. Capt Beck shows how a soldier, by the use of cover and concealment, can make himself nearly invisible to the enemy.

THE NEW AIRBORNE DIVISION—*By Maj John W. Urban, Infantry.*

T/O&E, missions, and capabilities of all units of the new airborne infantry division other than the regiment. A companion-piece to the article on the NEW AIRBORNE INFANTRY REGIMENT which appeared in the preceding issue of the QUARTERLY.

A NEW LOOK AT TRAINING FILMS—*By Capt Frank F. Rathbun, Infantry.*

The new, post-World War II Training Films—what they show and how to use them. An article written by an officer who is intimately connected with the planning, writing, and shooting of infantry training films at Fort Benning.

JULY 1950

THE FUTURE OF CLOSE COMBAT—*By Lt Col George B. Pickett, Jr., Cavalry.*

The author believes that the answer to VT fire is the use of armored personnel carriers to transport troops on the battlefield. He discusses industrial limitations imposed on this idea, tactical utilization of armored personnel carriers, and possible future organizations incorporating such vehicles.

SUBCALIBER FIRING WITH THE 4.2-INCH MORTAR—*By Capt James W. Kitchen, Infantry.*

Here is a description of another subcaliber device used by The Infantry School to teach firing a large weapon without expending limited quantites of large caliber ammunition. This subcaliber device uses the 60-mm mortar mounted in the 4.2-inch weapon. Complete constructional details are shown along with firing tables and the procedures used to teach 4.2-inch mortar firing with the smaller tube.

"TAKE A PATROL . . . "—*By Capt Robert G. Kimball, Infantry.*

Here is presented the problem facing a lieutenant ordered to take a reconnaissance patrol into enemy territory. The reader assumes the identity of the platoon leader, studies the situations that confront him and answers the requirements presented in the problem. Each requirement has a solution and discussion against which the reader can check his solutions.

COVERING THE WITHDRAWAL INTO BATAAN—*By Lt Col Bruce Palmer, Jr., Infantry.*

A historical account of the covering action on Luzon that permitted withdrawal of a sizeable portion of our forces to Bataan for a final stand in the early days of World War II.

AIRBORNE TRAINING CYCLE—*By Capt Jack Tallerday, Infantry.*

The courses open to personnel desiring airborne training and just what that training consists of in the Airborne Department of The Infantry School.

YOUR PHOTOMAP—*By Maj John D. Foulk, Infantry.*

How to put a grid reference system on your photomap, how to scale it, and how to determine its magnetic and true north. In short, how to make a complete photo*map* from an aerial photograph.

PLAIN ENGLISH—*Lt Col Harry W. Stephenson, Jr., Infantry.*

An article that tells what's being done to make more readable the training literature of the Army. It shows old and new examples of field manual writing and cites a few simple rules for writing more simply and understandably.

WOODEN WORKING MODELS—BAR—*By Capt Frederick H. Black, Jr., Infantry and SFC Coats Brown.*

This article is an answer to the frequent requests for information on the construction of wooden working models for small arms training. Complete constructional drawings and methods of construction are given for building the BAR operating group model, the trigger group model, and the buffer and rate reducing group model.

PREPARATION FOR A DAWN ATTACK: A PROBLEM—*By Maj John E. Reid, Infantry.*

This problem takes the reader through the preparation—the planning and movement of a company preceding an attack at dawn. The reader solves the requirements presented and can check his solutions against those, which are presented, together with a discussion of each, by the author.

COMMUNICATION DATA RULE—*By Capt C. A. Martin, Jr., Infantry.*

One of the handy training devices used by The Infantry School, the Communication Data Rule, its manufacture and use.

TECHNIQUE OF INSTRUCTION: EXAMINATION—*By Capt Marvin J. Berenzweig, Infantry.*

How to examine your troops during military instruction to see how successful you've been in getting your teaching across to them. The various examination methods—test questions, field exercises, etc., are presented.

"YOU'RE NOW S-2 . . . "—*By Lt Col Raymond E. Daehler, Infantry.*

A regimental commander tells his newly assigned S-2 just what he expects of him in his job as intelligence officer for the organization. This article serves as an excellent guide to the duties of an S-2.

GUNS AGAINST ARMOR—*By Lt Robert N. Ives, Infantry.*

An account of the continuing struggle for supremacy between guns and armor. The author goes into some of the technical difficulties that face the weapons manufacturer who wants to knock out armor, some of the same difficulties that face the armor manufacturer who wants his tanks to stand up against modern weapons.

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